THE

AGRICULTURAL ADVISORY DEPARTMENT

IMPERIAL COLLEGE OF TROPICAL AGRICULTURE.

IMPERIAL ENTOMOLOGICAL
3 1937
INSTITUTE

REPORT

ON THE

Agricultural Department

ST. KITTS-NEVIS

1936.

ISSUED BY

THE COMMISSIONER OF AGRICULTURE

IMPERIAL COLLEGE OF TROPICAL AGRICULTURE.

1937.

[Price Sixpence.]

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Letter of Transmittal

CCS/JF.

C.A. 261/37. 8th March, 1937.

Sir,

I have the honour to transmit herewith the annual report on the Agricultural Department for the year 1936.

2. The total export value of the products of agriculture and related industries amounted to £289,767 in 1936, an increase of approximately 12 per cent over the corresponding figure for 1935. This increase was largely due to increased exports of Sea Island cotton, but in some measure also to increased exports of fancy molasses from Nevis.

3. Production of sugar in St. Kitts in the crop of 1936 amounted to 28,174 tons and was almost identical with that of the previous two years, a slightly larger area under sugar cane compensating for the less favourable weather conditions of the season. It is regrettable that in spite of substantial increases in the market prices of all other major agricultural commodities, the price of sugar reached a new low record at a figure slightly less than that of the previous year.

4. As indicated last year, however, the greater efficiency of the industry as a whole both in the field, as the result of scientific investigation, and in the factory, will be reflected in the future in greatly increased production during seasons with adequate and well-distributed rainfall.

5. Weather conditions in 1936 were more favourable than in recent years and, in consequence, an increase in production of 15 to 20 per cent. is anticipated in the crop of 1937.

6. It is gratifying to record that throughout the year there was a steady demand for Sea Island cotton. Planters took full advantage of the improved market situation for extending cotton cultivation. The total crop produced in the Presidency amounted to 485,040 lb. lint, the greatest production since the season of 1929—30. The crop was readily sold, the total export value amounting to £33,885.

7. The Island of Nevis experienced a better agricultural year than it has experienced for several years. There was a welcome increase in the total quantity and a better distribution of rainfall. The improved market conditions for Sea Island cotton stimulated renewed efforts in agricultural operations. A larger area was planted in cotton and production amounted to 219,215 lb. lint, three times that of the previous year.

8. The Government Ginnery in Nevis continued to operate for the ginning and marketing of peasants' cotton. An advance of 6 cents per lb. and a bonus of 3.2 cents per lb. was paid for seed cotton, making a total payment of 9.2 cents per lb. seed cotton. This was a very satisfactory price in the circumstances. The Agricultural Instructor is to be congratulated on the successful operation of the ginnery under somewhat difficult conditions.

9. There was no expansion of the sugar industry in Nevis during the year. The greater proportion of the crop was converted locally into fancy molasses for export, but enquiry should be directed into the possibility of modernising and reducing the cost of transport of canes to the St. Kitts (Basseterre) sugar factory with a view to the establishment of a more stable outlet for the cane crop at a more remunerative price.

10. Conditions in the Land Settlement areas are now showing some signs of improvement, but the standard of agriculture continues to be maintained at a low level by the majority of allottees. A plot of sugar cane was cultivated by the Department at Low Ground during the year and served the useful purpose of demonstrating to the allottees that good crops can be obtained by proper cultivation methods. More widespread use should be made of such demonstration plots as a means of educating small cultivators.

11. Conditions in Anguilla were also better during the year as the result of increased rainfall. Arrangements were made at the advent of the rains to provide planting material of provision crops, and a high yielding variety of pigeon pea from Trinidad was introduced.

12. The scheme of sugar cane experimental work, conducted in co-operation with the Sugar Cane Investigation Committee of St. Kitts under the direction of Mr. P. E. Turner, Sugar Cane Agronomist, was continued during the year and satisfactory progress can be recorded. The work involved in carrying out the programme of experiments under this scheme constitutes the major function of the Agricultural Department as at present organised. A detailed account of the results of the experiments is reproduced in the report.

13. A soil survey of the upper sugar cane lands of St. Kitts was undertaken with a view to the determination of lime, potash and phosphate requirements and the analytical results so far obtained are recorded. It is important that this investigational work should be carried on with the greatest possible despatch.

14. Selection of the St. Kitts strain of Sea Island cotton was carried on as usual, but planters have decided to cultivate the Montserrat strain in future. Special arrangements will be made with the Montserrat Agricultural Department for the regular supply of pedigree seed.

15. Mr. A. Wimbush, Chief Conservator of Forests, Madras, visited the forest areas of St. Kitts and Nevis early in the year. His observations and recommendations have been submitted in a separate report.

I have the honour to be,

Sir,

Your obedient servant,

G. A. JONES,

Commissioner of Agriculture.

His Honour,
The Administrator.
ST. KITTS-NEVIS, B.W.I.

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STAFF OF THE AGRICULTURAL DEPARTMENT, ST. KITTS-NEVIS

Agricultural Superintendent	R. E. Kelsick.
Assistant Agricultural Officer	G. B. Gregory, D.I.C.T.A. (to 31st January, 1936).
Assistant Agricultural Officer	J. M. Cave, D.I.C.T.A. (from 31st January, 1936.)
Agricultural Instructor, Nevis	W. I. Howell.
Agricultural Instructor, Anguilla	E. O. R. Lake.
Assistant Clerk and Cotton Inspector, St. Kitts.	F. S. Delisle.
Cotton Inspector and Land Officer, Nevis ..	C. Wilson. (from 24th February, 1936).

Report of the Agricultural Department, St. Kitts-Nevis,

For the Year ended 31st December, 1936.

SECTION I.

AGRICULTURE IN THE PRESIDENCY.

WEATHER CONDITIONS.

The year was free of violent storms. The first four months were very dry, the average rainfall for this period being 3 inches below the average for the same period for the past twenty-three years. From May to the end of the year the rainfall was good, although November was somewhat dry. The total average rainfall for the island was 63.12 inches, as compared with 48.89 inches in 1935 and 55.34 in 1934. The average of the island for twenty-three years is 55.52 inches so that the rainfall for 1936 is 7.60 inches above the average. The average rainfall for the year of the Northern or wet district of the island is 70.55 inches (57.73 in 1935) and of the Valley or dry district 56.44 inches (41.32 in 1935). The total average rainfall from January to June inclusive was 17.74 inches or 2 inches below normal, and from July to December inclusive 45.38 inches as compared with 35.68 inches for the period 1914—1936.

In St. Kitts the drought from January to April adversely affected the early growth of the sugar cane crop and made the establishment of an early and regular stand of cotton very difficult. In Nevis the dry spell in the early months caused much boll shedding and a reduction of yield in the cotton crop. The growth of vegetable and ground provision crops was also affected.

In Anguilla the unusually long spell of dry weather which marked the closing months of 1935, was continued to the end of April. This drought seriously affected the food crops of the peasants and in consequence there was much hardship among the population. In the three islands agricultural conditions improved considerably in the second half of the year and at the end of the year agricultural prospects were good.

Fuller details of weather conditions are given in the Meteorological statistics appended to this report.

SUGAR.

St. Kitts

According to returns supplied by the estates the area reaped in 1936 was 8,500 acres as against 8,100 acres in 1935 and 7,600 in 1934. Growers supplied 201,633 tons of cane to the St. Kitts (Basseterre) Sugar Factory as compar-

ed with 205,192 tons in 1935 and 200,211 tons in 1934. The average yield of cane to the acre for the island was 23.70 tons as against 25.25 tons in 1935 and 26.23 tons in 1934. The output of the Factory was 28,174 tons of grey crystal sugar, which was 300 tons below the output of 1935.

The sugar was sold at an average price of £8. 16. 4. per ton f.o.b. as against £8. 16. 10. in 1935 and £9. 3. 5. in 1934. Contracting growers received a first payment of 14s. per ton for their canes and a deferred payment of 1s. 0.48d. per ton making the price for canes 15s. 0.48d. per ton as compared with 14s. 10.84d. in 1935.

During the year the Directors of the St. Kitts (Basseterre) Sugar Factory and the Contracting cane suppliers agreed on certain new terms in the contract and it appears that the long dispute between the Factory and the planters has at last been settled.

The price of sugar in the world's markets remained very low during the year and relief of the position does not seem to be yet in sight. The growers continued their efforts to obtain increased yields and much attention was given to methods of manuring and to the use of new and better varieties of sugar cane. The new variety B.2935 gave very satisfactory yields on the estates where it was tried and it is rapidly replacing S.C.12.4 in the dry areas, where its introduction should soon result in increased yields of cane per acre.

The higher deferred payment for canes made by the Factory this year enabled the estates to increase the bonus paid to their labourers and it is estimated that about £1,000 more was distributed among the labourers at the end of the year than in 1935.

The production for the past ten years is shown in Table I.

TABLE I

SUGAR—ST. KITTS.

Year	Average Rainfall for island previous year	Acreage reaped	Tons of cane produced	Tons cane per acre	Tons of sugar produced	Tons sugar per acre
	Inches	Acres		(Long tons)		
1927	62.57	6,425	164,928	25.67	18,067	2.81
1928	64.36	6,770	162,829	24.09	19,443	2.87
1929	53.25	6,950	120,106	17.32	13,724	1.97
1930	52.55	6,883	150,737	21.98	18,680	2.71
1931	45.98	6,096	98,209	16.11	12,021	1.97
1932	57.60	6,537	164,259	25.13	19,969	3.05
1933	77.27	7,715	184,538	24.27	24,167	3.13
1934	63.97	7,630	200,211	26.23	28,320	3.62
1935	55.34	8,105	205,192	25.25	28,491	3.52
1936	48.89	8,508	201,633	23.70	28,174	3.29

According to the Customs returns the exports of sugar, molasses and syrup during the period 1927-1936 were as shown in Table II.

TABLE II.

SUGAR—EXPORTS AND VALUES.

Year	Sugar.		Molasses		Syrup.		Prices Grey Crystals f.o.b. per long ton.
	Exports Long tons	Value £	Exports Gals.	Value £	Exports Gals.	Value £	£ s. d.
1927	17,363	232,784	489,925	2,834	41,750	2,000	16. 14. 7.
1928	18,610	264,490	339,340	1,710	34,473	1,336	14. 18. 0.
1929	12,736	150,153	—	—	8,970	299	11. 16. 4.
1930	17,637	178,654	—	—	7,877	263	10. 6. 2.
1931	10,579	110,234	589,690	5,759	—	—	9. 10. 2.
1932	19,327	187,347	459,404	1,197	250	5	9. 17. 9.
1933	22,588	234,747	630,749	2,897	—	—	9. 18. 3.
1934	27,415	252,986	709,443	2,118	20,547	765	9. 3. 5.
1935	27,280	236,964	453,999	5,126	31,248	1,106	8. 16. 10.
1936	26,892	236,959	475,024	6,562	122,965	5,094	8. 16. 4.

INVESTIGATIONAL WORK.

During the year the Department continued to conduct experiments on behalf of the industry in co-operation with the Sugar Cane Investigation Committee and twenty-seven experiments, with a total of 1,037 plots, were reaped. The results of these experiments are given in Section II of this report. Twenty-seven new experiments were also laid down and the experimental programme covers a wide field.

Nevis.

It is estimated that about 1,000 acres of sugar cane were grown for the 1936 crop. The industry is entirely in the hands of peasants and in consequence of the dry weather in 1935 yields were very low. A part of the crop was sold to the St. Kitts (Basseterre) Sugar Factory and from the remainder muscovado sugar and syrup were manufactured locally.

TABLE III.

Year	Area planted in Sea Island Cotton Acres.				Total Lint production in lbs.				Yield of Lint per acre in lbs.		
	St. Kitts	Nevis	Anguilla	Total	St. Kitts	Nevis	Anguilla	Total	St. Kitts	Nevis	Anguilla
1926–27	1,774	870	70	2,714	247,220	160,000	—	407,220	140	130	—
1927–28	1,000	1,500	64	2,564	149,070	407,000	22,000	578,070	150	271	—
1928–29	1,400	1,500	300	3,900	327,300	274,000	51,000	652,300	230	109	170
1929–30	2,200	2,500	300	4,200	397,763	80,000	27,000	504,763	180	40	90
1930–31	1,170	1,500	300	2,970	129,900	159,000	32,200	321,100	111	106	107
1931–32	200	250	218	668	35,140	23,737	26,141	85,018	176	95	120
1932–33	140	100	134	374	20,352	10,042	18,767	49,161	143	100	140
1933–34	253	600	280	1,133	59,129	47,677	34,881	141,687	234	80	124
1934–35	400	800	250	1,450	101,869	72,603	27,570	202,042	255	90	110
1935–36	1,030	1,850	300	3,180	235,353	219,216	50,471	485,040	228	118	102

The following quantities of canes were sent from Nevis to St. Kitts during the past four years:

1933	.....	2,110 tons
1934	.....	4,139 „
1935	.....	2,429 „
1936	.....	1,141 „

Further details of the industry are given in the Agricultural Instructor's report.

According to the Customs returns 122,965 gallons of syrup valued at £5,094 were exported during the year.

COTTON.

The production for the past ten years is shown in Table III.

It will be noted that in the 1935–36 season there was a considerable increase in the acreage under cotton and that production was the highest since 1929-30. There has been a marked improvement in the market for sea island cotton and practically all of the cotton produced in the Presidency was exported and sold before the end of 1936.

On some estates in St. Kitts the crop was persistently attacked by the cotton leaf worm (Alabama) and fairly large quantities of insecticide had to be used for the control of the pest. In Nevis Alabama was also troublesome

In the early fields pink bollworm damage was not serious, but in the late planted fields this pest caused serious losses to the crop.

According to the Customs returns the exports of cotton lint, cotton seed and cotton seed oil during the period 1927—1936 were as shown in Table IV.

TABLE IV.

COTTON—EXPORTS AND VALUES.

Year	Cotton Lint		Cotton Seed		Cotton Seed Oil		Prices
	Exports	Value	Exports	Value	Exports	Value	Cotton Lint St. Kitts c. i. f. per lb.
	lbs.	£	Long tons	£	Gals.	£	s. d.
1927	387,167	35,205	122	540	—	—	1. 8.
1928	438,552	36,038	138	596	—	—	2. 5.
1929	690,068	66,407	383	1,317	—	—	2. 0.
1930	778,761	65,484	364	1,837	12,272	932	2. 6½
1931	245,511	12,364	388	1,363	9,489	425	1. 0. to 1. 10.
1932	127,444	5,961	35	290	2,657	224	10. to 1. 2.
1933	88,550	4,701	—	—	—	—	1. 1.
1934	166,910	7,324	—	—	7,298	442	1. 3. to 1. 4.
1935	204,647	10,327	2	16	5,995	533	1. 5. to 1. 8.
1936	508,295	33,885	142	601	7,987	765	1. 6½ to 1. 10½

It will be seen that the value of cotton lint exported is more than three times the value of the lint exported in 1935 and the highest since 1930. The improvement in the market for sea island cotton noted in last year's report was maintained and, in consequence, there were further increases in the area planted in cotton.

THE WEST INDIAN SEA ISLAND COTTON ASSOCIATION (INC.)

The fourth Annual General Meeting of the West Indian Sea Island Cotton Association and the first Ordinary General Meeting of the West Indian Sea Island Cotton Association (Incorporated) were held in St. Kitts from the 25th to the 27th November.

Delegates from St. Vincent, Barbados, Antigua, Montserrat, Nevis and St. Kitts attended the meetings. Arrangements for the meetings and for the entertainment of the delegates were made by the local Cotton Growers' Association of which the Agricultural Superintendent is Honorary Secretary and Treasurer.

MINOR INDUSTRIES.

COCONUTS.

From Table V, it will be seen that a larger quantity of copra was exported from Nevis than in 1935, but there is no progress to be recorded in this minor industry.

TABLE V.

COCONUTS—EXPORTS AND VALUES.

Year	COCONUTS.		COPRA.	
	Exports	Value	Exports	Value
	No.	£	lb.	£
1927	298,369	2,400	—	—
1928	312,648	2,040	3,360	41
1929	1,668	10	—	—
1930	16,144	100	553	7
1931	43,900	256	—	—
1932	78,770	445	16,480	215
1933	56,953	208	23,520	98
1934	105,646	228	58,800	223
1935	95,157	215	8,440	26
1936	9,030	26	45,464	205

PROVISION AND MARKET GARDEN CROPS.

Ground provisions were fairly plentiful during the year but market garden crops were adversely affected by weather conditions. In Nevis there was an increase in the acreage planted in tomatoes but yields were considerably reduced by heavy rains. The quantities of tomatoes exported by the peasants of Nevis to Canada during the period 1932—36 are given below.

	Lbs.	Value.
1932	58,590	£524
1933	28,637	221
1934	14,000	105
1935	15,880	120
1936	14,560	108

LIVE STOCK.

The exports of live stock during the past ten years are given below:—

	Number	Value
1927	1,008	£3,596
1928	561	1,708
1929	427	770
1930	473	1,544
1931	796	3,107
1932	1,185	2,636
1933	971	2,325
1934	762	796
1935	751	925
1936	903	1,604

Hides and skins to the value of £333 were exported during the year.

No serious animal diseases occurred during the year. The two pure bred Zebu bulls owned by Government in Nevis were in good health and condition during the year. The pure bred Berkshire boar owned by Government in Anguilla died during the year and the question of replacing the animal is being considered.

FORESTRY.

Under the provision of a grant for the British West Indies made by the Colonial Development Fund Committee Mr. A. Wimbush, Chief Conservator of Forests, Madras, visited the Presidency for the purpose of investigating forestry conditions.

Mr. Wimbush spent four days inspecting the forests in St. Kitts and one day was devoted to inspecting some of the forests in Nevis. He was accompanied by the Commissioner of Agriculture on his inspections. During his stay in St. Kitts Mr. Wimbush had the opportunity of interviewing many landowners and managers of estates who were interested in the protection of the forests. He also attended a meeting of the Forestry Board at which he gave an address on forestry problems.

Mr. Wimbush has issued a report on the forestry problems of the Windward and Leeward Islands and his recommendation regarding the Head Forest Ranger in St. Kitts has been adopted by the Government on the recommendation of the Forestry Board.

AGRICULTURAL EXPORTS.

The following table shows the chief agricultural products exported during the years 1934, 1935 and 1936.

Article	1934.		1935.		1936.	
	Quantity	Value. £	Quantity	Value. £	Quantity	Value. £
Sugar, crystals	27,415 long tons	252,986	27,280 long tons	236,964	26,892 long tons	236,959
Syrup and Molasses	709,443 gals	2,118	485,247 gals.	6,232	597,989 gals.	11,656
Sugar, musco.	10 tons	106	2 tons	36	....	—
Cotton, lint ..	166,910 lb.	7,324	204,647 lb.	10,327	508,295 lb.	33,885
Cotton seed	....	....	2 tons	16	142 tons	601
Cotton seed oil	7,298 gals.	442	5,995 gals.	533	7,937 gals.	765
Coconuts ...	105,646	228	95,157	215	9,030	26
Copra	58,800 lb.	223	8,440 lb.	26	45,464 lb.	205
Salt	1,302 tons	2,056	2,015 tons	2,188	3,484 tons	3,173
Tomatoes	14,000 lb.	105	15,880 lb.	120	14,560 lb.	108
Vegetables	....	388	....	327	....	356
Fruit	....	....	....	20	....	61
Sweet Potatoes	6,240 lb.	26	29,630 lb.	86	7,750 lb.	22
Tamarinds	5,500 lb.	23	2,625 lb.	12	....	13
Ginger	408 lb.	11	....	—	....	—
Hides and Skins	....	140	....	311	....	333
Horses	22	139	15	105	12	80
Mules	17	90	25	256	40	536
Asses	85	64	35	29	3	2
Cattle	50	176	47	222	96	406
Sheep ...	445	230	494	227	547	460
Goats ...	43	21	86	45	151	75
Swine	120	76	49	41	54	45
Total Exports		£266,972		£258,322		£289,767

SECTION II.

Report of the Agricultural Instructor, Nevis.

For the Period 1st January to 31st December, 1936.

WEATHER CONDITIONS.

The rainfall at the Experiment Station for the year was 58.73 inches, which was 14.20 inches more than that of 1935. Rain fell on 131 days during the year and the heaviest fall recorded for any one day was 3.15 inches which occurred on November the 3rd. The rainfall on the whole had been fairly well distributed throughout the year.

SUGAR.

The total acreage under sugar cane was about 1,000 acres. Reaping of the crop began in February, and as in the past, a part of the crop was made into muscovado sugar at the local mills and the remainder sold to the St. Kitts (Basseterre) and the Cane Garden factories.

The total quantity of canes sold is as follows :—

St. Kitts (Basseterre) Factory	1,141 tons
Cane Garden Factory	3,327 tons

The price paid for canes at the weigh-bridges at Charlestown and New Castle for shipment to the Basseterre Factory was at the rate of 10/6 per ton, and that paid at the Cane Garden Factory was 12/- per ton. The canes sold to the Cane Garden Factory was made into syrup for the Canadian market, and the total quantity of syrup produced was about 1,802 barrels containing 92,495 gallons.

The acreage planted for the 1937 crop was about 800 acres. Many of the fields that were intended for late planting were not again planted, but held over and put under cotton. The crop experienced very favourable weather during the year, and yields throughout the island are expected to be good. Planting of the 1938 crop was started in November and December, but it appears that there will not be any increase in the acreage planted in canes.

The variety B.2935 has given good results and it appears to be a variety that will do well in Nevis.

Pests and Diseases. Except for the small moth borer which has increased this year, the crop was not seriously affected by any pests or diseases.

COTTON.

The 1935—36 cotton crop was all reaped by the end of May, and the total production was 211,819 lb. of clean lint and 7,397 lb. of stained lint from 1,857 acres, being at the rate of 114 lb. of clean lint per acre. Of the total crop 107,751 lb. were marketed by the Government and 104,068 lb. by a local cotton dealer. The whole crop was shipped to the British Cotton Growing Association and sold at prices ranging from 1s. 5d. to 1s. 7d. per lb.

The planting season for 1936 was changed from October 1st to September 16th, but the greater part of the crop was planted during the month of October. The total acreage planted was estimated at about 3,000 acres and all the seed used for planting was hand-picked seed supplied by the Agricul-

tural Department. Under section 5 of Ordinance No. 4 of 1936, seed for planting other than that supplied by the Agricultural Department is prohibited. The seed germinated well, but on account of excessive rains which followed weeding operations were found difficult and many of the plots got overrun with weeds. The dry spell during the latter part of October and early November greatly helped the situation and the crop was very promising at the end of the year.

Pests. During the month of December it was observed that the pink bollworm was fairly general on the early planted cotton, and it is feared that with an attack starting up so early in the season, there is likely to be serious damage to the crop by this pest.

There were several attacks of the leaf worm (Alabama) early in the season, but no serious damage has been done as the pest was promptly dealt with.

The peasants were again this year allowed a credit of Paris Green and Lime by the Government, and fifty-one peasants were supplied with insecticide on credit. 291 lb. of Paris Green and 16 bags of lime were supplied in this way.

The Cotton Stainer was again troublesome this season, but it was not so plentiful as it was last season.

The cleaning up of the cotton plots for the Close Season has been satisfactory, and the fumigation of cotton seed at the ginneries was carried out in accordance with Regulations.

MINOR INDUSTRIES.

COCONUTS.

The older plantations continue to do fairly well, but the younger plantations are somewhat neglected; most of them are grown up in grass and weeds and need cultivation.

At Pinneys estate the greater part of the crop was made into copra for export to Barbados, and the total quantity of copra shipped during the year was 20 tons.

At the other plantations the crop is mostly sold in the local market as dry or water nuts.

LIVE STOCK.

The stock did not suffer from the outbreak of any serious disease, and pasture conditions during the year were very much better than they usually are.

The two Government-owned pure bred Zebu bulls continue in good health and condition. The older animal is stationed at the Low Ground settlement, and the other has been at Pinneys estate for the greater part of the year.

GROUND PROVISIONS.

The usual ground provision crops such as sweet potatoes, yams, Indian corn, cassava and peas were grown during the year. On the whole the crops did fairly well, and there was no shortage of locally grown food stuffs during the year.

There was an increase in the acreage planted in tomatoes and every prospect of an unusually large crop this year, but just before the fruits got to

the "mature green" stage the heavy rains started and more than 50 per cent of the crop was destroyed, and only 713 crates were shipped to the Canadian market.

Pests. The green bug (Nezara) was not so plentiful as it was last season.

THE EXPERIMENT STATION.

The hedges have been kept trimmed and in good order. In the nursery the raising of fruit trees and ornamental and shade trees was continued.

Experiments with economic and food crops were carried out at the station and seeds and cuttings of the varieties giving best results were distributed to growers.

THE DEMONSTRATION PLOT.

Crops such as sugar cane, cotton, ground provisions and vegetables are grown on this plot with the object of providing a larger supply of planting material to meet the growing demand and also to demonstrate correct methods of cultivation. Accounts showing the cost of the various operations in connection with each crop are kept, and also a record of the yields obtained.

Every opportunity is taken to draw the peasants' attention to these plots when they come to the Station for planting material.

VEGETABLE NURSERY.

The nursery for raising vegetable seedlings was continued and seedlings from 20 lb of tomato seed and 30 lb of onion seed were distributed from the station during the year.

COTTON SELECTION.

Selection work on the Nevis strain of cotton was discontinued and selected seed of the fine St. Kitts type was substituted for planting the progeny rows and multiplication plots. Sufficient seed of this type was also obtained to plant field plots of about 150 acres with the object of providing a source from which sufficient seed of a suitable type could be obtained for planting the whole island's crop.

PLANT DISTRIBUTION.

The plants, seeds and cuttings distributed during the year are shown below:—

Ornamental plants and shade trees	464
Grafted Mangoes (Julie)	7
Garden Grape	2
Bay Trees	282
Cane Plants	71,450
Sweet Potato cuttings	600
Cassava cuttings	3,680
Selected cotton seed, lb.	62,231
Yams, lb.	100
Seed Corn (Maize) lb.	9
Guinea Corn, lb.	17
Peas and Beans, lb.	21
Tomato Seedlings	279,000
Onion Seedlings	151,200

AGRICULTURAL EDUCATION.

School Gardens. The work on the school gardens continues to be unsatisfactory. For those schools near the Settlements, perhaps it might be better to have a school plot on the settlement where the crops can be grown on commercial lines and introducing costings, selection of planting material, manuring etc. This, I believe, will provide a fairly sound agricultural knowledge to the boys of the upper divisions. The impression one gets from the work carried on on the school gardens is that the boys are really playing at gardening.

Advisory Work. The Agricultural Instructor pays visits to the estates and peasants' plots, and is in close contact with the planting community.

The Land Settlements continue to receive a great deal of the Instructor's attention, and the cane nurseries and demonstration plots on the settlements receive his personal attention. These plots are of great value to the allotment holders as they furnish an object lesson in cultivation and care of the crops, and also are a source of supply of suitable planting material for the settlements.

The Agricultural Instructor is Honorary Secretary of the Agricultural and Commercial Society, which also functions as the local Cotton Growers Association. Ten meetings were held during the year and the following were the chief matters discussed :—Change in planting season for cotton; Incorporation of the Agricultural and Commercial Society; Credit of Paris Green and Lime by the Government for peasants; Co-operative Marketing of Sea Island Cotton; Matters relating to the West Indian Sea Island Cotton Association conference.

Thanks are due and extended to the estate owners and the planting community as a whole for their co-operation with the agricultural officers, which greatly facilitated the work of the Department.

OFFICIAL VISITS.

Periodical visits are paid by the Commissioner of Agriculture and members of his staff for the purpose of discussing and advising on local agricultural problems. Regular visits are paid by the Agricultural Superintendent at St. Kitts.

PUBLICATIONS RECEIVED.

The following publications have been regularly received and are hereby gratefully acknowledged :—The Journal of the Imperial College of Tropical Agriculture; Journal of Agricultural Research and Experiment Station Record, United States Department of Agriculture; Journal of the Empire Cotton Growing Corporation; Journal of the Agricultural Society, Jamaica; Report of the Department of Agriculture, Barbados; Report of the Experiment Station, Porto Rico; Report of the Agricultural Department and the Agricultural Bulletin, Bermuda; Climatological Report, San Juan, Porto Rico.

REPAIRS TO BUILDINGS.

The office at the Experiment Station was reshingled and painted.

STAFF CHANGES.

There was no change of staff during the year. Mr. C. Wilson was appointed Chief Cotton Inspector and Land Officer in February. The Agricultural Instructor went on leave from the 16th September to the 31st October, and his duties were performed by the Cotton Inspector.

Report of the Agricultural Instructor, Anguilla,

For the Period 1st January to 31st December, 1936.

WEATHER CONDITIONS.

The total rainfall recorded at the Demonstration Plot in the Valley for the year 1936 was 51.64 inches, which is 20.21 inches more than that of the previous year and 8.34 inches more than the precipitation in 1934. Rain fell on 119 days during the year and the highest fall recorded for any one day was 2.24 inches on the 31st December. At another station, Wall Blake estate, the total rainfall for the year was only 39.44 inches. Up to the end of April the weather was very dry, but from May to the end of December the rainfall was ample.

The following table shows the monthly rainfall at the Demonstration Plot for the year under review.

Month.	Rainfall Inches	No. of days on which rain fell	Maximum fall Inches	Date
January	2.77	9	0.68	9th
February	3.37	8	0.69	8th
March	0.40	3	0.18	12th
April	0.67	2	0.37	7th
May	10.02	15	1.70	24th
June	2.28	4	1.40	21st
July	3.49	10	2.10	24th
August	5.36	17	1.08	22nd
September	7.72	14	1.98	30th
October	5.76	15	1.68	2nd
November	3.89	11	1.15	4th
December	5.91	11	2.24	31st
Total	51.64	119		

DISTRIBUTION OF SEEDLINGS AND PLANTING MATERIAL.

The planting material distributed to the peasants during the year was as follows :—

Onion	1,000 seedlings
Cabbage	84 „
Tomato	66 „
Egg Plant	36 „
Cassava	450 cuttings
Yam	300 lb.
Corn (Indian)	990 lb.
Peas	450 lb.
Breadfruit	16 plants
Mamie apple	6 „
Poinsettia	12 plants
Hibiscus	4 „

THE DEMONSTRATION PLOT.

Onions. The supply of onion seed was received very late from St. Kitts this year and arrived when the most favourable weather had passed. Two beds were planted and the germination of the seed was good. A plot has been planted from the seedlings, which are also being sold to the peasants.

Other vegetable crops were planted and are making good growth.

THE COTTON INDUSTRY.

The 1935–36 cotton crop amounted to 30,471 lb. of lint (29,234 lb. clean cotton and 1,237 lb. stained cotton) as compared with 27,570 lb. in 1935 and 34,881 lb. in 1934. The cotton was purchased from the peasants at the Central Ginnery at 2½d. per lb. for seed cotton, with the promise of a bonus at the end of the crop. At the end of the year a bonus of 1d. per lb. of seed cotton was paid by the ginnery making the price for seed cotton 3½d. per lb.

The planting of the 1936–37 crop was started on the 1st August, 1936. The peasants planted a much larger acreage than in 1935 and in the early part of the season there was the promise of a very good crop, but the crop has since been considerably damaged by the pink bollworm and it has suffered from the very wet weather in January. It is not likely that it will reach the original estimate of 75,000 lbs. of lint.

In the Valley district there were persistent attacks by the cotton leaf worm (Alabama) and to control the pest fairly large quantities of insecticide had to be used. There was no serious damage to the crop.

An insect which has been causing damage to freshly planted cotton seed during the past two seasons has been identified by the Entomologist at the Imperial College, Trinidad, as stink-bugs of the family Cydnidae and various treatments have been suggested for its control.

The seed for planting the island's crop was again supplied by the Central Ginnery where it had been carefully hand picked and Mr. Carter Rey continued the multiplication plot on one of his estates. The seed for planting the plot was supplied by the Agricultural Superintendent.

Montserrat Cotton. A trial with the Montserrat type of cotton was carried out on a plot of Government land at the Cove estate. The plot was planted on the 20th August. The land is poor and the plants did not grow well, but it is hoped that enough cotton will be reaped to give a large enough sample of lint for a broker's valuation to be obtained.

Cotton Inspection. The Agricultural Instructor continued to perform the duties of Cotton Inspector. Each year an assistant inspector is appointed for the close season. During 1936 thirty growers were prosecuted for not complying with the control Ordinances.

PIGEON PEAS.

A new variety of pigeon peas was introduced through the Commissioner of Agriculture, Trinidad, and its growth on the demonstration plot is very promising. This variety is stated to be a high yielder in Trinidad and it is hoped that it will be the same in Anguilla as the pigeon pea is the most important food crop of the Anguilla peasant.

It has been observed that nodule formation on the roots of pigeon peas in Anguilla is very poor and an experiment was carried out on the suggestion of the Agricultural Superintendent, with various fertilizer mixtures but no differences were observed.

LAND SETTLEMENT SCHEME.

The allotment holders were unable to pay their annual instalments during the year owing to failure of their crops during the dry weather.

LIVE STOCK.

The Government owned pure bred Berkshire boar died suddenly on the 2nd October. It is hoped that another boar will be purchased from the Trinidad stock farm to replace the loss. The other stock on the island were in good condition during the year.

OFFICIAL VISITS.

During the year visits were paid to the Demonstration Plot by Mr. R. E Kelsick, Agricultural Superintendent, Dr. C. E. E. Stevens, Magistrate, Mr. V. S. Brookes, of the Treasury Department, and Mr. K. S. Lockhart, Audit Clerk.

EXPERIMENT STATIONS AND NURSERIES.

Seed and Plant Distribution.

The following is a list of the planting material distributed from the nurseries in St. Kitts and Nevis during the year :—

PLANTS.

Ornamental and Shade trees	1,096
Grafted Mangoes (Julie)	42
Grafted Avocados	8
Budded Citrus	36
Sapodilla	2
Garden Grape	4
Breadfruit	20
Miscellaneous fruit trees	6

SEEDS, SEEDLINGS AND CUTTINGS

Sugar-cane, cuttings	308,726
Onion seedlings	177,448
Tomato seedlings	279,000
Sweet potato cuttings	600
Cassava cuttings	3,680
Cotton seed, lb.	64,828
Yams, lb.	400
Indian corn, lb.	9
Guinea corn, lb.	17
Onion seed, lb.	22
Vegetable seeds, pkts.	1,800

SEED AND PLANT INTRODUCTION.

The following varieties of sugar cane were introduced through the Plant Quarantine Station at Trinidad :—Barbados 3127, 2977, 3234, 3439, 3011, 3138, 3124, 3013, 3216, 2931, 2935, 3179, 11569; Demerara 49/30, 66/30, 11/28; Coimbatore 213, 290; Mayaguez 63, Fiji, Groen Duitsch N.G., P.O.J. 2883, New Guinea 24.

Of these the following varieties have been retained and are being propagated to provide sufficient planting material for variety trials in 1937 :—Barbados 3013, 3439, 3124, 3127, 3138, 3234, 11569; P.O.J. 2883, Mayaguez 63, Co.213 and Co.290.

Seeds of the Tonka Bean (Dipteryx odorata) were introduced from Trinidad through the Commissioner of Agriculture; seeds of the Victoria regia lily were supplied by the Department of Agriculture, British Guiana, bulbs of Anthurium were obtained from the Department of Agriculture, Trinidad, seeds of a high yielding variety of pigeon pea were obtained from the Imperial College of Tropical Agriculture through the Commissioner of Agriculture.

EXPERIMENTAL WORK WITH SUGAR CANE UNDERTAKEN BY THE DEPARTMENT IN CO-OPERATION WITH THE SUGAR CANE INVESTIGATION COMMITTEE.

Twenty-seven experiments with sugar cane, with a total of 1,037 plots (1/20th and 1/30th acre), were reaped by the Department during the year. As in 1933, these experiments were laid down by the Department in 1934 under the direction of Mr. P. E. Turner, M.Sc., F.I.C., Adviser in Sugar Cane Experiments to the Commissioner of Agriculture, and in co-operation with the Sugar Cane Investigation Committee.

They comprise:—

5 Variety Trials
2 Time of Planting Trials
2 Spacing Trials
3 Cultural Trials
4 Liming Trials
10 Manurial Trials
1 Mulching Trial.

The results of the experiments are given in detail below, the data having been abstracted from "Preliminary Summary of Yield Data 1936 Crop" by P. E. Turner and R. E. Kelsick and "Recent investigations on Sugar Cane and Sugar Cane Soils in St. Kitts" by the same authors.

VARIETY TRIALS ON PLANT CANES AND RATOONS.

THE DRY AREAS OF THE LOWER LANDS.

The variety S.C.12/4 is largely grown in the dry areas. The data recorded in Table I enable a comparison of the yield of cane and of sugar given by plant and ratoon canes of this variety and the variety B.2935.

TABLE I.

A Comparison of the Standard Variety S.C. 12/4 with B.2935.

Estate: Camp Soil: Sandy loam.
Planted: 7th December, 1933.
Reaped: 12th February, 1935, as plants; 5th February, 1936, as first ratoons.
Rainfall: 66 inches as plants (15¾ months).
34 inches as first ratoons (11¾ months).
Layout: Six randomised blocks with both varieties repeated twice in each block.
Manurial treatment: The plant canes received 25 tons of pen manure and 3 cwts of sulphate of ammonia to the acre and the ratoon canes 3 cwts. of sulphate of ammonia to the acre.

Variety	Cane (tons per acre)			Sugar (tons per acre)		
	Plants 1933–35	1st Ratoons 1935–36	Total 1933–36	Plants 1933–35	1st Ratoons 1935–36	Total 1933–36
B.2935	47.38	24.95	72.33	4.44	2.59	7.03
S.C.12/4	36.06	22.50	58.56	3.47	2.16	5.63
Difference	11.32	2.45	13.77	0.97	0.43	1.40

The difference of 2.45 tons of ratoon cane to the acre in favour of B.2935 cannot be established as statistically significant. The difference of 0.43 ton of sugar in favour of B.2935, however, might be due to chance less than once in 20 times.

Total Yield (Plants and Ratoons)

In this experiment the variety B.2935 gave a yield to the acre of plants and first ratoons of 13.77 tons of cane and of 1.40 tons of sugar in excess of the standard variety S.C.12/4. Both differences might be due to chance far less than once in 100 times.

There are set out in Table II the results of a trial which include the varieties B.726, P.O.J.2878 and G.119 as well as S.C.12/4 and B.2935. Each value recorded in Table II is a mean for ten replicate plots.

TABLE II

A comparison of Varieties under Conditions of early and late Reaping as Plant Canes.

Estate: College Soil: Sandy loam.
Planted: 7 December, 1933.
Reaped: 21 February, 1935 (early), and 11 May, 1935 (late), as plant canes. 7 February, 1936 as first ratoons (all plots).
Rainfall: 59 inches (14¾ months), 66 inches (17½ months) as plant canes. 43 inches (11½ months), 40 inches (9 months) as first ratoons.
Layout: Four 5 x 5 Latin squares.
Manurial treatment: The plant canes received 25 tons of pen manure and 3 cwts. of sulphate of ammonia to the acre and the ratoon canes 2 cwts. of sulphate of ammonia to the acre.

Variety	Yield of cane (tons per acre)						Yield of sugar (tons per acre)		
	Early reaping as plants			Late reaping as plants			Early reaping as plants		
	Plants 1933–35	1st R. 1935–6	Total 1933–6	Plants 1933–5	1st R. 1935–6	Total 1933–6	Plants 1933–5	1st R. 1935–6	Total 1933–6
B.2935	39.63	17.00	56.63	33.30	16.42	49.72	4.25	1.46	5.71
P.O.J.2878	37.26	16.32	53.58	39.00	16.31	55.31	3.75	1.37	5.12
B.726	33.39	14.81	48.19	30.01	13.55	43.56	3.68	1.36	4.99
G.119	36.20	16.77	52.97	26.23	17.14	43.38	3.37	1.26	4.63
S.C.12/4	31.71	11.58	43.30	29.66	13.95	43.61	3.19	0.88	4.07

Total Yields (Plants and First Ratoons).

Early reaping as plants.

Differences in total yield of cane to the acre exceeding 3.50 tons and 4.72 tons might be due to chance less than once in 20 and once in 100 times respectively. The variety B.2935 gave a yield of plant and ratoon canes which is larger than any of the other varieties and significantly larger than the total yields for G.119, B.726 and S.C.12/4. P.O.J.2878 and G.119 gave significantly larger yields than B.726 and S.C.12/4. S.C.12/4 gave a significantly smaller yield of cane than any of the other varieties.

The variety B.2935 gave a significantly larger total yield of sugar than any other variety. P.O.J.2878 and B.726 gave yields of sugar definitely superior to those of G.119 and S.C.12/4.

In this experiment B.2935 gave a total yield of 13.33 tons of cane and 1.64 tons of sugar more to the acre than S.C.12/4 when reaped early in crop as plant canes and as first ratoons, a result which is in close agreement with that obtained at Camp Estate.

Late reaping as plants.

P.O.J.2878 gave a significantly larger total yield of cane than any other variety, including B.2935, primarily because of the superior manner in which the plant canes of the Java variety withstood the drought conditions which prevailed during the period between the early and late reapings in 1935. There is little to choose between the total yields of cane for the varieties B.726, G.119 and S.C.12/4, which are significantly smaller than the yields for P.O.J.2878 and B.2935.

In this experiment P.O.J.2878 and B.2935 gave total yields of 11.70 tons and 6.11 tons of cane, respectively, in excess of S.C.12/4, under conditions of late reaping as plant canes.

There are recorded in Table III the yield data for another experiment which includes the varieties S.C.12/4, B.2935, B.726, P.O.J.2878 and G.119. This trial was laid down in 1934 in the form of two Latin squares. One of the squares was reaped early in the crop season of 1936, and one late in this crop season, as plant canes.

TABLE III.

A Comparison of Varieties under conditions of early and late reaping as Plant Canes.

Estate: Douglas. Soil: Sandy loam.
Planted: 13 November, 1934.
Reaped: 24 February, 1936 (early), 28 April, 1936 (late).
Rainfall: 55 inches (15½ months), 59 inches (17½ months).
Layout: Two 5 x 5 Latin squares.
Manurial treatment: 25 tons of pen manure and 3 cwts. of sulphate of ammonia to the acre.

Variety.	Yield of plant canes (tons per acre).					
	Early reaping		Late reaping.		Average values.	
	Cane.	Sugar.	Cane.	Sugar.	Cane.	Sugar.
B. 2935	36.56	3.54	27.27	2.79	31.91	3.16
P.O.J. 2878 .	34.31	3.22	26.32	2.68	30.31	2.95
G. 119	35.41	3.01	25.29	2.45	30.35	2.73
B. 726	25.55	2.68	22.18	2.32	23.86	2.50
S.C.12/4	27.22	2.56	23.31	2.39	25.26	2.47

Plant Canes.

Early reaping.

A fair amount of rotted cane was found on the plots of the varieties B.726 and S.C.12/4 even at the time of the early reaping.

Differences in yield of plant cane must exceed 4.69 tons to the acre to be due to chance less than once in 20 times. There is little to choose between the yields of cane for the varieties B.2935, P.O.J.2878 and G.119, all of which are significantly larger than the yields for B.726 and S.C.12/4.

For the early reaping, the plant canes of B.2935 gave 9.35 tons cane and 0.98 ton sugar more to the acre than S.C.12/4.

Late reaping.

The recorded differences in cane and sugar for the late reaping of the plant canes cannot be established as statistically significant because of the large variation in yield between corresponding plots. This variation is probably due in the main to irregular drying out of cane from plot to plot.

Average yields (early and late reapings).

On the average the varieties B.2935, P.O.J.2878 and G.119 gave approximately equal yields of plant cane greatly in excess of those for B.726 and S.C.12/4. B.2935 gave a significantly larger average yield of sugar than the varieties G.119, B.726 and S.C.12/4. P.O.J.2878 gave a significantly larger average yield than B.726 and S.C.12/4.

The Wet Areas.

B.H.10(12) is the variety predominantly grown in the wet areas. P.O.J.2878 and B.374 are grown to a limited extent. Data are set out in Table IV which enable a comparison of the yield of cane and sugar given by plant and ratoon canes of these varieties with the seedling B.726.

TABLE IV.

A Comparison of Varieties under conditions of adequate rainfall.

Estate: Molineux. Soil: Sandy loam.
Planted: 2 December, 1933.
Reaped: 26 February, 1935 as plant canes, 2 April, 1936 as first ratoons.
Rainfall: 88 inches (16 months) as plant canes.
57 inches (13¼ months) as first ratoons.
Layout: Two 4 x 4 Latin squares.
Manurial treatment: The plant canes received 25 tons of pen manure and 3 cwts. of sulphate of ammonia to the acre and the ratoon canes 4 cwts. of sulphate of ammonia.

Variety.	Cane (tons per acre).			Sugar (tons per acre).		
	Plants 1933-5	1st R. 1935-6	Total 1933-6	Plants 1933-5	1st R. 1935-6	Total 1933-6
B.H.10(12)	44.68	41.75	86.43	4.71	5.02	9.73
B. 726	40.33	39.84	80.17	4.64	4.93	9.57
P.O.J. 2878	44.28	35.52	79.81	4.60	4.30	8.90
B. 374	46.25	39.14	85.39	4.51	4.30	8.81

Total Yields (Plants and First Ratoons)

Differences greater than 3.86 tons of cane to the acre might be due to chance less than once in 20 times. The varieties B.H.10(12) and B.374 gave total yields of plants and ratoons in excess of those for P.O.J.2878 and B.726 by five to six tons of cane to the acre.

Differences greater than 0.59 ton sugar to the acre might be due to chance less than once in 100 times. The total yields of sugar for the varieties B.H.10(12) and B.726 are therefore definitely superior to those for P.O.J.2878 and B.374.

From the standpoint of total yield of cane and sugar the variety B.H.10(12) is superior to all others in this experiment.

The data recorded in Table V enable a further comparison of the yields given by plant canes of the varieties B.H.10(12), B.726 and P.O.J.2878 in the wet areas.

TABLE V

A Comparison of Varieties in a wet area.

Estate: Mansion. Soil: Sandy loam.
Planted: 7 November, 1934.
Reaped: 27 March, 1936.
Rainfall: 73 inches (16¾ months).
Layout: Three 3 x 3 Latin squares.
Manurial treatment: 25 tons of pen manure and 3 cwts. of sulphate of ammonia to the acre.

Variety	Yield of plant canes (tons per acre)	
	Cane	Sugar
B.726	40.06	4.57
B.H.10(12)	38.97	4.20
P.O.J.2878	30.98	3.64

Plant Canes.

The variety P.O.J.2878 arrowed profusely. The individual canes of this variety were pithy, and were drying out rapidly as early as March (1936).

Differences in yield of cane exceeding 2.65 and 2.77 tons to the acre might be due to chance less than once in 20 and once in 100 times, respectively. The yield of cane for the variety B.726 exceeded that for B.H.10(12), but the difference of 1.09 tons to the acre might be due to chance factors. The yields of cane for B.726 and B.H.10(12) are greatly in excess of the yield for P.O.J. 2878.

Differences in yield of sugar exceeding 0.33 ton and 0.48 ton to the acre might be due to chance less than once in 20 and once in 100 times, respectively. B.726, by virtue of the superior quality of its juice, gave a significantly larger yield of sugar than B.H.10(12). P.O.J.2878 gave 0.93 ton of sugar to the acre less than B.726 and 0.56 ton less than B.H.10(12).

Time of Planting.

In both dry and wet areas it is of importance to determine how early planting operations can begin without undue harm resulting to the young cane in the dry season which follows planting. Measured information has so far been obtained from two experiments designed to investigate this problem.

The Dry Areas of the Lower Lands.

The effect on yield of planting the variety B.H.10(12) at monthly intervals extending from the middle of September to the middle of January, under very conditions, is recorded in Table VI.

TABLE VI

Effect on Yield of Time of Planting of B.H. 10(12) under very dry conditions.

Estate: Buckleys. Soil: Sandy loam.
Variety: B.H.10(12).
Reaped: 4 April, 1936.
Layout: Two 5 x 5 Latin squares.
Rainfall:

September—December, 1934 ..	22.22	inches
January—June, 1935	10.91	„
July—December, 1935	26.38	„
January—March, 1936	8.04	„
Total	67.55	„

Manurial treatment: All plots received 2 cwts of sulphate of ammonia and 1 cwt of muriate of potash six weeks after planting, and 2 cwts. of sulphate of ammonia towards the end of the dry season of 1935.

Time of planting	Rainfall (ins.)	Yield of cane (tons per acre)
Mid. Sept. (1934)	2.96	13.10
Mid. Oct.	2.25	14.57
Mid. Nov.	10.82	17.95
Mid. Dec.	3.22	20.65
Mid. Jan. (1935)		22.00

The dry season following planting was exceptionally long and severe, only 10.91 inches falling in the first six months of the year. The annual total of 37.29 inches is 12.55 inches below the average for the period 1919-34.

Under these conditions the yield of cane steadily and significantly increased as the time of planting was delayed. The January planting gave a yield of 8.90 tons cane to the acre in excess of the September planting.

The Wet Areas.

The data obtained for a similar experiment in the wet areas with the variety B.H.10(12) are recorded in Table VII.

TABLE VII.

Effect on Yield of time of Planting of B.H. 10(12) under wet conditions.

Estate : Bellevue *Soil* : Sandy loam.
Variety : B.H.10(12)
Reaped : 22 April, 1936.
Layout: Three randomised blocks of six treatments.
Rainfall :

August—December, 1934	33.36	inches
January—June, 1935,	15.37	„
July—December, 1935	42.37	„
January—March, 1936	5.87	„
Total	96.97	„

Manurial treatment : All plots received 1 cwt. of sulphate of ammonia at the time of planting, 2 cwts. of sulphate of ammonia and 1 cwt. of muriate of potash six weeks after planting and 3 cwts. of sulphate of ammonia at the end of the dry season of 1935.

Time of planting	Rainfall (ins.)	Yield of cane (tons per acre)	
Mid. Aug. (1934)		39.32	
	4.32		
Mid. Sept.		40.77	40.71
	9.03		
Mid. Oct.		42.05	
	3.76		
Mid. Nov.		36.46	
	11.58		
Mid. Dec.		37.65	36.91
	5.06		
Mid. Jan. (1935)		36.61	

The rainfall in the first six months was only two-thirds of the average during this period for the previous 20 years.

The area on which the experiment was laid down is somewhat variable in character. Consequently individual differences in yield cannot be established as statistically significant. The difference of 3.80 tons of cane to the acre between the average yields for the three early plantings and for the three late plantings, however, might be due to chance less than once in 20 times. According to these data planting operations in the wet areas should be completed by the end of October if maximum yield of B.H.10(12) is to be obtained.

Distance of Spacing.

The effect of varying the spacing distance within the row on yield of plant and ratoon canes has been measured in two experiments, one of which was laid down in a very dry area and the other in a moderately wet area. The distance between the rows of cane in both experiments was maintained constant at 4½ feet.

The Dry Areas of the Lower Lands.

The data for the experiment on the very dry area are set out in Table VIII.

TABLE VIII

Effect of Spacing Distance on Total Yield under very Dry Conditions.

Estate : Canada *Soil* : Sandy loam
Variety : S.C.12/4
Planted : 6 December, 1933.
Reaped : 6 March, 1935, as plant canes, 7 February, 1936, as first ratoons.
Rainfall : 45 inches (15 months) as plant canes.
36 inches (11½ months) as first ratoons.
Layout : Four 3 x 3 Latin squares.
Manurial treatment : The plant canes were given to the acre an early dressing of 25 tons of pen manure and a late dressing of 3 cwts. of sulphate of ammonia. The first ratoons were given 3 cwts. of sulphate of ammonia and 1 cwt. of muriate of potash to the acre.

Spacing distance	Yield of cane (tons per acre)			
	Plants 1933–35	1st. R. 1935–36	Total 1933–36	Diff.
4½ ft. x 2 ft.	31.80	18.26	50.06	--
4½ ft. x 3 ft.	34.37	20.88	55.25	5.19
4½ ft. x 4 ft.	36.15	21.26	57.41	7.35

First Ratoons.

Differences in yield of the ratoons exceeding 1.76 tons of cane to the acre might be due to chance less than once in 100 times. The yield of ratoons on the plots with a spacing of two feet in the row is therefore significantly smaller than the yield on the plots with spacings of three feet and four feet. Too close planting on light soils under conditions of limited rainfall can therefore not only adversely affect the yield of plant canes but also of the following crop of ratoons.

Plant and Ratoon Canes.

Differences in total yield of plant and ratoon canes exceeding 3.71 tons are statistically significant. The total yields to the acre on the plots with three feet and four feet spacings are larger by 5.19 and 7.35 tons than the yield on the plots with a spacing of two feet. The optimum spacing distance within the row on a very dry area of light soil probably lies in the region of 4½ feet under the conditions which obtained.

A Moderately Wet Area.

The yield data for the moderately wet area are recorded in Table IX.

TABLE IX

Effect of Spacing Distance on Total Yield under Moderately Wet Conditions.

Estate : Stapleton *Soil* : Sandy loam
Variety : B.H.10(12)
Planted : 16 January, 1934.
Reaped : 2 May, 1935 as plant canes, 29 April, 1936 as first ratoons.
Rainfall : 66 inches (15½ months) as plant canes.
55 inches (11¾ months) as first ratoons.
Layout : Three 3 x 3 Latin squares.
Manurial treatment : The plant canes were given 25 tons of pen manure and 3 cwts. of sulphate of ammonia to the acre and the ratoons 3 cwts of sulphate of ammonia and 1 cwt. of muriate of potash.

Spacing distance	Yield of cane (tons per acre)			
	Plants 1934–35	1st. R. 1935–36	Total 1934–36	Diff.
4½ ft. x 2 ft.	37.64	23.52	61.16	—
4½ ft. x 3 ft.	38.58	25.18	63.76	2.60
4½ ft. x 4 ft.	38.35	24.99	63.35	2.18

First Ratoons and Total Yields.

Slightly smaller ratoon yields and total yields were obtained with the spacing distance of two feet in the row than with the wider spacings, but the differences cannot be definitely ascribed to spacing distance. It therefore remains open to doubt whether the yield of B.H.10(12) is increased by reducing the distance in the row below four feet under the conditions which obtained on the experimental area.

Cultural Methods.

The results of the four trials with cultural methods are given in Tables X to XIII.

TABLE X

Effect of Depth of Ploughing on the Yield of Plant Canes.

Estate : College *Soil* : Sandy loam.
Variety : S.C.12/4.
Planted : 25 December, 1934.
Reaped : 12 February, 1936.
Rainfall : December, 1934 5.50 inches
January—June, 1935 8.70 ,,
July—December, 1935 32.28 ,,
January, 1936 2.96 ,,
Total 49.44 ,,

Layout : Eight randomised blocks, each treatment being repeated twice in each block.

Manurial treatment : All the plots received 3 cwts. of sulphate of ammonia to the acre six weeks after planting and 3 cwts. of sulphate of ammonia at the end of the dry season of 1935. In addition half of the plots received 2 cwts. of muriate of potash to the acre six weeks after planting.

Depth of close ploughing	Yield of cane (tons per acre)
6 inches	22.93
12 inches	22.75

TABLE XI

Effect of Chiselling the Tarish of an Upper Land Field on the Yield of Plant Canes.

Estate : Molineaux (Upper lands)
Variety : B.H.10(12)
Planted : 19 September, 1934
Reaped : 31 March, 1936
Rainfall: Spt.—Dec., 1934 26.77 inches
Jan.—June, 1935 16.87 ,,
July—Dec., 1935 44.23 ,,
Jan.—March, 1936 7.46 ,,
Total 95.33

Layout : Eight randomised blocks, each treatment being repeated twice in each block.

Manurial treatment : All the plots received 1 cwt. of sulphate of ammonia to the acre at planting, 2 cwts. of sulphate of ammonia six weeks later and 3 cwts. of sulphate of ammonia to the acre at the end of the dry season of 1935. In addition half of the plots received 1 cwt. of muriate of potash six weeks after planting.

Treatment of tarish in furrows	Yield of cane (tons per acre)
Chiselled (6″—12″)	34.46
Nil	34.52

TABLE XII.

Effect of cross-holing on the Yield of Plant Canes.

Estate : Mansion.
Variety: B.H. 10(12).
Planted : 23 October, 1934.
Reaped : 25 March, 1936.
Rainfall : Oct.—Dec., 1934 19.01 inches
Jan.—June, 1935 14.19 „
July—Dec., 1935 39.27 „
Jan.—March, 1936 5.55 „
Total 78.02
Layout : Eight randomised blocks, each treatment being repeated twice in each block.
Manurial treatment : The experimental area received 25 tons of pen manure to the acre, 1 cwt. of sulphate of ammonia at planting, 2 cwts. of sulphate of ammonia and 1 cwt. of muriate of potash to the acre six weeks later and 3 cwts. of sulphate of ammonia to the acre at the end of the dry season of 1935.

Treatment	Yield of cane (tons per acre)
Open furrows	40.21
Cross-holes	39.45

TABLE XIII

Effect of Cultivation on the Yield of Ratoon Canes.

Estate : Buckleys (dry area)
Variety : B.H.10(12).
Reaped : March, 1935 as plant canes. 26 February, 1936 as first ratoons.
Layout : Seven randomised blocks of four treatments.
Manurial treatment : The ratoon canes received 3 cwts. of sulphate of ammonia to the acre in one application.
Rainfall : April—June, 1935 6.31 inches
July—Dec., 1935 26.38 „
Jan.—Feb., 1936 6.96 „
Total 39.65 „

Treatment of first ratoons	Yield of cane (tons per acre)
(1) Trash not hauled, stools moulded	20.48
(2) Trash ranged alternate rows, bare row cultivated	20.43
(3) As (2), trash reversed, other row cultivated	20.00
(4) As (3), trash hauled back on both banks	19.18

The following are the conclusions drawn from the data:—

Depth of Ploughing.

Increasing the depth of close ploughing of the open, porous, deep soil on College Estate from 6 inches to 12 inches had no effect on the yield of cane.

Chiselling Tarish. (Upper lands).

Opening up the subsoil in the furrows by means of a chisel had neither a beneficial nor adverse effect on yield in the experiment on Molineux estate.

Cross-holing.

No gain in yield resulted from the operation of cross-holing in the experiment at Mansion.

Cultivation of Ratoons.

None of the additional cultural operations had a significant effect on the yield of the ratoon canes in the experiment at Buckleys. The data confirm the results obtained previously by the Department.

LIMING.

The results of the liming experiments are recorded in Tables XIV to XVII.

TABLE XIV.

Liming.

Estate: Mansion.
Variety: B.H.10(12).
Limed: 21 December, 1933. (local slaked lime).
Planted: 23 January, 1934.
Reaped: Plant canes 5 June, 1935, first ratoons 20 May, 1936.
Rainfall: Plant canes (16½ months) .. .. 69 inches
1st Ratoons (11 months) .. .. 49 „
Layout: Two 4 x 4 Latin squares.
Manurial treatment: The plant canes received 2 cwts of sulphate of ammonia and 1½ cwts of muriate of potash to the acre six weeks after planting and 3 cwts of sulphate of ammonia at the end of the dry season of 1934. The ratoon canes received 3 cwts of sulphate of ammonia and 1 cwt of muriate of potash to the acre.

Slaked lime per acre	Yield of cane (tons per acre)		
	Plants (1935)	1st. R. (1936)	Gain (to date)
Nil	38.19	31.21	—
1.55 tons	40.66	32.25	3.51
3.10 tons	42.03	34.69	7.32
4.65 tons	43.75	36.77	11.12

TABLE XV

Liming.

Estate: Parsons.
Variety: B.H.10(12).
Limed: 16 December, 1933 (local slaked lime)
Planted: 25 December, 1933.
Reaped: Plant canes 2 April, 1935, first ratoons 18 February, 1936.
Rainfall: Plant canes (16¼ months) .. 89.12 inches
1st Ratoons (10½ months) .. 58.60 „
Manurial treatment: The plant canes received 2 cwts. of sulphate of ammonia and 1½ cwts of muriate of potash to the acre six weeks after planting and 3 cwts of sulphate of ammonia at the end of the dry season of 1934. The ratoon canes received 3 cwts. of sulphate of ammonia and 1 cwt. of muriate of potash to the acre.
Layout: Two 4 x 4 Latin squares.

Slaked lime per acre	Yield of cane (tons per acre)		
	Plants (1935)	1st. R. (1936)	Total (to date)
Nil	35.00	29.70	64.70
1½ tons	34.78	26.87	61.65
3 tons	35.21	29.40	64.61
4½ tons	36.22	28.08	64.30

TABLE XVI

Liming.

Estate: Parsons.
Variety: B.H.10(12)
Limed: 22 September, 1934 (imported ground limestone).
Planted: 3 October, 1934.
Reaped: 18 February, 1936.
Rainfall: October—December, 1934 .. .. 20.63 inches
January—June, 1935 .. .. 13.90 „
July—December, 1935 .. .. 48.08 „
January, 1936 .. .. .. 2.29 „
Total .. .. .. 84.90 „
Manurial treatment: The experimental area received 1 cwt. of sulphate of ammonia to the acre of planting, 2 cwts. of sulphate of ammonia and 2 cwts. of muriate of potash six weeks later and 3 cwts. of sulphate of ammonia to the acre at the end of the dry season of 1935.
Layout: Three 4 x 4 Latin squares.

Limestone per acre	Yield of cane (tons per acre).	Loss (tons per acre).
Nil	38.39	....
2 tons	38.09	0.30
4 tons	36.10	2.29
6 tons	36.45	1.94

TABLE XVII

Liming.

Estate: Milliken.
Variety: B.H.10(12).
Limed: 7 October, 1934.
Planted: 19 October, 1934.
Reaped: 17 April, 1936.
Rainfall: No rainfall figures are available for this station.
Manurial treatment: The experimental area received 1 cwt. of sulphate of ammonia to the acre at planting, 2 cwts. of sulphate of ammonia and 2 cwts. of muriate of potash six weeks later and 3 cwts. of sulphat of ammonia to the acre at the end of the dry season of 1935.
Layout: Three 4 x 4 Latin squares.

Limestone per acre	Yield of cane (tons per acre).	Gain (tons per acre).
Nil	40.01	....
2 tons	41.82	+ 1.87
4 tons	41.48	+ 1.47
6 tons	38.76	— 1.25

Liming has resulted in gains in yield in the experiments at Mansion and Milliken. At Parsons estate no increase of yield was obtained from the use of either local slaked lime or imported ground limestone. Further investigations are being carried out on the use of lime on the soils of the upper lands.

Early Dressing of Sulphate of Ammonia to Plant Canes.

The results of experiments to determine the effect on the yield of plant canes of early dressings of Sulphate of Ammonia are given in Tables XVIII and XIX.

TABLE XVIII

Effect of Early Dressings of Sulphate of Ammonia on the Yield of Plant Canes.

Estate:	West Farm		Cranstouns
Variety:	B.2935		B.H.10(12)
Planted:	17 October, 1934.		13 October, 1934.
Reaped:	17 March, 1936.		21 March, 1936.
Rainfall:	Oct.—Dec., 1934 ..	16.82 ins.	16.73 ins.
	Jan.—June, 1935 ..	12.70 „	14.29 „
	July—Dec., 1935 ..	29.30 „	37.51 „
	Jan.—Feb., 1936 ..	7.45 „	5.01 „
	Total ..	66.27 „	73.54 „

Manurial treatment: All plots in both experiments received a basal dressing of 2 cwts. muriate of potash and 2 cwts. super-phosphate of lime six weeks after planting. At the end of the dry season of 1935 all the plots received 3 cwts. of sulphate of ammonia to the acre.
Layout: One 6 x 6 Latin square.

Sulphate of Ammonia per acre		Yield of cane (tons per acre).	
At planting	Six weeks after planting	West Farm	Cranstouns
Nil	Nil.	34.03	28.62
Nil	1½ cwts.	33.68	27.64
Nil	3 cwts.	33.01	26.82
1 cwt.	Nil.	34.35	27.89
1 cwt.	1½ cwts.	31.73	28.18
1 cwt.	3 cwts.	33.63	26.22

TABLE XIX

Effect of Early Dressings of Sulphate of Ammonia on the Yield of Plant Canes.

Estate: Estridge (wet area).
Variety: B.H.10(12)
Planted: 1 December, 1934.
Reaped: 28 May, 1936.
Rainfall:

Nov.—Dec., 1934	11.72	ins.
Jan.—June, 1935	15.04	„
July—Dec., 1935	39.91	„
Jan.—May, 1936	15.50	„
Total	82.17	„

Manurial treatment: All plots received a basal dressing of 2 cwts. of muriate of potash and 2 cwts. of superphosphate of lime to the acre six weeks after planting. At the end of the dry season of 1935 an application of 3 cwts. of sulphate of ammonia to the acre was made to all the plots.
Layout: One 6 x 6 Latin square.

Sulphate of Ammonia per acre		Yield of cane tons per acre	Gain tons per acre
At planting	6—8 weeks after		
Nil	Nil	43.90	—
Nil	1½ cwts	48.99	5.09
Nil	3 cwts	50.51	6.61
1 cwt	Nil	48.07	4.17
1 cwt	1½ cwts	48.48	4.58
1 cwt	3 cwts	52.08	8.18

In the experiments at West Farm and Cranstouns no gains in yield resulted from the *early* dressings of sulphate of ammonia, but in the experiment at Estridge (wet area) substantial gains in yield are recorded from the early applications of sulphate of ammonia. On the experimental area at this station the optimum early dressing of sulphate of ammonia would appear to be in the region of 2 to 3 cwts. to the acre, applied six to eight weeks after planting. On the average no gain was derived from the dressing of 1 cwt. to the acre at planting.

Early and Late Dressings of Sulphate of Ammonia to Ratoon Canes.

The results of experiments to determine the effect on the yield of first ratoon canes of early and late dressings of Sulphate of Ammonia are recorded in Table XX.

TABLE XX

Effect of Early and Late Dressings of Sulphate of Ammonia on the Yield of Ratoon Canes.

Estate:	Caines.		Belmont.	
Variety:	B.H.10(12)		B.H.10(12)	
Reaped:	15 May, 1935 as plants		May as plants.	
	15 May, 1936 as first ratoons		12 May as first ratoons.	
Rainfall:	May—Dec., 1935	47.24 ins.	May—Dec., 1935	60.46 ins.
	Jan.—May, 1936	17.43 „	Jan.—May, 1936	13.22 „
	Total ..	64.67 „	**Total** ..	73.68 „
Layout:	Two 5 x 5 Latin squares.			

Sulphate of Ammonia per acre (1935)		Yield of 1st Ratoons (1936)	
Mid. July	Early October	Caines	Belmont
Nil	Nil	34.72	20.41
2 cwts	Nil	37.38	27.26
3 cwts	Nil	38.49	27.68
2 cwts	2 cwts	37.04	28.24
3 cwts	2 cwts	37.05	29.71

The gain in yield of ratoon canes due to treatment with sulphate of ammonia might be due to chance less than once in 100 times in both experiments.

Belmont.

The gain of 6.85 tons of cane due to 2 cwts. of sulphate of ammonia to the acre is normal. Heavier dressings than 2 cwts. did not give significant additional gain.

Caines.

The gain of 2.66 tons of cane due to 2 cwts. of sulphate of ammonia is subnormal. The experimental area had received a heavy dressing of pen manure in the plant cane crop.

It is probable that the October dressings of sulphate of ammonia were applied too late to have an appreciable immediate effect on yield.

Early Dressings of Superphosphate To Plant Canes.

The effect on yield of plant canes of early dressings of superphosphate of lime is recorded in Table XXI.

TABLE XXI

The effect of Early Dressings of Superphosphate on the yield of Plant Canes.

Estate:	Lynches.	Belmont	
Variety:	B.H.10(12).	B.H.10(12)	
Planted:	2 December, 1934.	12 October, 1934	
Reaped:	7 April, 1936.	7 March, 1936	
Rainfall:	No figures available for this station.	Oct.—Dec., 1934	22.94 ins
		Jan.—June, 1935	19.78 „
		July—Dec., „	48.78 „
		Jan.—Feb., 1936	5.22 „
			96.72 „

Manurial treatment: All plots of the two experiments received 1 cwt. of sulphate of ammonia to the acre at planting. 2 cwts. of sulphate of ammonia and 2 cwts. of muriate of potash to the acre six weeks later and 3 cwts. of sulphate of ammonia to the acre at the end of the dry season of 1935. The experimental area at Belmont was also dressed with 25 tons of pen manure to the acre.

Layout: Lynches—two 4 x 4 Latin squares.
Belmont—three 4 x 4 Latin squares.

Superphosphate per Acre		Lynches		Belmont
At planting	6-8 weeks after planting	Yield (t.p.a.)	Gain (t.p.a.)	Yield (t.p.a.)
Nil ...	Nil	31.05	..	61.66
Nil	2 cwts.	33.16	2.11	60.75
1 cwt.	Nil	34.15	3.10	60.74
1 cwt.	2 cwts.	33.85	2.80	60.28

Lynches.

The gain in yield due to superphosphate might be due to chance less than once in 100 times. A dressing of 1 cwt. to the acre appears adequate for the plant canes under the conditions of the experiment. It would seem that this dressing should be applied as early as possible in the life of the plant.

Belmont.

The experimental area was given a heavy dressing of pen manure and no increase in yield resulted from the applications of superphosphate.

Early Dressings of Potash to Plant Canes.

The effect on the yield of plant canes of early dressings of potash is recorded in Tables XXII and XXIII.

TABLE XXII

The Effect of Early Dressings of Potash on the Yield of Plant Canes.

	College (dry area)	Molineux (wet area)
Estate:		
Variety:	S.C.12/4.	B.H.10(12)
Planted:	25 November, 1934.	19 October, 1934.
Manured:	8 January, 1935.	12 November, 1934.
Reaped:	7 May, 1936.	31 March, 1936.

College		Molineux	
Potash per acre.	Yield (t.p.a.)	Potash per acre.	Yield (t.p.a.)
2 cwts	23.75	1 cwt.	36.18
Nil	21.93	Nil	32.80
Gain	1.82	Gain	3.38

TABLE XXIII

The Effect of Early Dressings of Potash on the Yield of Plant Canes.

	Mt. Pleasant.	Willetts.
Estate:		B.H.10(12)
Variety:	B.H.10(12).	4 October, 1934.
Planted:	2 November, 1934.	12 March, 1936.
Reaped:	6 May, 1936.	
Rainfall:	No figures available for this station.	Oct.—Dec., 1934 24.01 ins. July—Dec., „ 17.67 „ July—Dec., „ 53.95 „ Jan.—Feb., 1936 4.01 „ 99.64 „

Manurial treatment: All plots of the two experiments received 1 cwt. of sulphate of ammonia to the acre at planting, 2 cwts. of sulphate of ammonia and 2 cwts. of superphosphate of lime to the acre six weeks later and 3 cwts. of sulphate of ammonia to the acre at the end of the dry season of 1935. The experimental area at Willets was also given 25 tons of pen manure to the acre.

Layout: Mt. Pleasant—Two 4 x 4 Latin squares.
Willetts —Three 4 x 4 Latin squares.

Potash per Acre		Mt. Pleasant		Willetts
At planting	6-8 weeks after planting	Yield (t.p.a.)	Gain (t.p.a.)	Yield (t.p.a.)
Nil	Nil	22.04	....	37.31
Nil	2 cwts.	28.28	6.24	37.69
1 cwt.	Nil	27.69	5.65	37.29
1 cwt.	2 cwts.	30.06	8.02	38.26

College

The gain from potash might be due to chance less than once in 100 times. A dressing of 1 cwt. of potash to the acre would have given an equally large gain.

Application of inorganic potash to plant canes on this experimental area would be unnecessary in the presence of a dressing of 20 tons of pen manure to the acre.

Molineux

The gain from potash is statistically significant.

Mt. Pleasant.

Potash led to large gains in yield on this experimental area. The optimum dressing appears to be in the region of 2 cwts. to the acre, applied within six weeks of planting.

The soil of the experimental area contains 20 parts per million of exchangeable potash (as K2O).

Willetts.

This experimental area received a basal dressing of pen manure. Application of inorganic potash led to no increase in the yield of the plant canes.

Molasses.

The results of an experiment to determine the effect on the yield of cane of applications of molasses are recorded in Table XXIV.

TABLE XXIV.

Molasses

Estate : Estridge.
Variety: B.H.10(12).
Planted : 20 February, 1934.
Reaped : 25 May, 1935 as plant canes
28 April, 1936 as first ratoons.

Molasses (1934) per cane-hole	Yield of cane (t.p.a.)		Gain (to date)
	Plants (1935)	1st. R. (1936)	
Nil	37.17	33.69	—
2½ pints	39.13	36.32	4.59
5 pints	37.77	35.84	2.75

The gains from molasses are probably due to the potash which it contains.

The smaller gain resulting from the heavier dressing of molasses (5 pints to the cane-hole) was due to the adverse effect of a dressing of this size on germination.

SUMMARY.

Varieties.

Dry Areas

As plant canes and first ratoons the variety B.2935 has given in general total yields of cane and sugar greatly in excess of the standard variety S.C. 12/4, and it would seem definitely advantageous to replace S.C.12/4 by B.2935 in the dry areas. B.2935, however, can lose heavily in weight as plant canes if reaped late in the crop season.

The variety P.O.J.2878 may find a place in dry areas for late reaping as plant canes, but additional experimental evidence is necessary before a final decision can be made as to its suitability for this purpose.

The varieties B.726 and G.119 appear definitely inferior to B.2935.

Wet Areas.

Satisfactory yields of cane and sugar have been obtained from the variety B.726 in those experiments in which it has germinated well. B.726 may prove a competitor of the standard variety B.H.10(12) under certain conditions in the wet areas.

The variety P.O.J.2878 is undoubtedly less suited to the wet areas than B.H.10(12).

Time of Planting (Plant Canes).

Dry Areas.

Yield of the variety B.H.10(12) was found steadily to increase as time of planting was delayed from September to January. This result should not be regarded as representative as B.H.10(12) is not suited to the very conditions which obtained.

Wet Areas.

The average yield given by B.H.10(12) when planted in August, September and October was found to be significantly greater than the average yield given by November, December and January plantings. It would seem that planting operations in the wet areas should be completed in October if maximum yield of B.H.10(12) is to be obtained.

Distance of Planting.

Dry Areas.

In a very dry area the optimum planting distance within the row for the variety S.C.12/4 appears to lie in the region of 4½ feet. Closer planting was found adversely to affect the yield of the plant canes and of the following ratoon crop.

Wet Areas.

In a moderately wet area a significant increase in the yield of plant and ratoon canes of variety B.H.10(12) did not result from planting closer than four feet in the row.

The distance between the rows in the experiments in both dry and wet areas was 4½ feet.

Methods of Cultivation.

Increases in the yield of plant canes were not obtained by increasing the depth of close ploughing, by opening up the subsoil in the furrows by means of a chisel or by cross-holing.

The cultivation of ratoon canes resulted in no increase in the yield of cane.

Liming.

Applications of lime gave increases in the yield of cane on two estates. The use of lime on the upper lands is receiving further investigation.

Early Dressings of Sulphate of Ammonia.

In the dry areas early dressings of sulphate of ammonia to plant canes led to no increases of yield, but in the wet areas substantial increases were recorded.

Early and Late Dressings of Sulphate of Ammonia to Ratoon Canes.

Applications of early dressings of sulphate of ammonia to ratoon canes gave significant increases in the yield of cane. The late dressings were probably applied too late to have an appreciable immediate effect on yield.

Early Dressings of Superphosphate to Plant Canes.

Significant increases in yield were recorded from applications of early dressings of superphosphate of lime to plant canes on the upper lands. Similar increases were not obtained on pen manured lower lands.

Early Dressings of Potash to Plant Canes.

Definite increases in the yield of plant canes were obtained from the use of early dressings of potash. Adequate manuring with potash should be given to all un-penmanured fields.

Sugar Cane Experiments Laid Down During the Year for the 1936—1938 Season.

The following sugar-cane experiments were laid down by the Department during the year for reaping in 1938 :—

Variety Trials.
College, Needsmust, Caines and Buckleys.

Manurial Trials.
Mulching with trash in relation to manurial treatment.
Canada.
Supplementary manurial treatment of pen manured soils.
Bellevue and Stapleton.
Size of dressing of Sulphate of Manure on unpenmanured upper lands.
Estridges, Mansion and Wingfield.
Phosphate on Upper Lands.
Mt. Pleasant, Bourkes, Lavingtons and Molineux.
Potash on unpenmanured soils.
Cranstouns and Milliken.

Liming Experiment
West Farm (upper lands).

Cultural Experiments.
West Farm and Belmont.

Time of Planting Experiment
Buckleys and Belmont.

Readily Available Lime, Potash, Phosphate And Manganese In Sugar Cane Soils Of St. Kitts.

In the annual report for 1933 there were recorded the contents of exchangeable Calcium, Potassium and Magnesium of some of the upper land soils. A further number of soil samples from the upper lands have now been examined and the results are given in the table below. The readily available phosphate has also been determined on some of the samples and the figures are included. Some of the samples were also examined qualitatively for easily soluble manganese by E. P. Morgan's method. In this method the soil is extracted with a solution of sodium acetate and acetic acid and a portion of the extract tested with benzidine solution.

(SURFACE 9-INCH LAYER OF SOIL)

Estate	Field	Exchangeable Lime (CaO) grms per 100 grms air dry soil (Method of Rice	Exchangeable Potash (K_2O) grms per 100 grms air dry soil Williams)	Available Phosphate (Truog) p.p.m. P_2O_5	Easily soluble Manganese
Buckleys ..	Jib	0.168	0.008		
	Man-o-War	0.141			Trace
	Grape Tree	0.150	0.005		
Canada ..	Short Head	0.143	0.006		Trace
Milliken ..	Cart Path	0.208	0.006	64	
	Cooper House	0.249	0.008		
	Fig Tree	0.176	0.010		
	Stone House	0.197	0.006		
West Farm ..	East Wind Mill	0.132	0.005		
	Lower Philips	0.154	0.005		
	Upper Cinnamon	0.132	0.005	17	
	West Wind Mill	0.155	0.017	21	
	Man-o-War	0.146	0.003	20	Present
	Big Heart	0.210	0.005	17	Present

(SURFACE 9-INCH LAYER OF SOIL)

Estate	Field	Exchangeable Lime (CaO) grms per 100 grms air dry soil (Method of	Exchangeable Potash (K_2O) grms per 100 grms air dry soil Rice Willi	Available Phosphate (Truog) p. p. m. P_2O_5 ams)	Easily soluble Manganese
Molineux ..	River Hill	0.119	0.009		
	Middle Field	0.241	0.009		
	Blue Beard	0.196	0.008		
	Upper Negro House	0.182	0.020		
	Sugar Works	0.177			
	Job	0.138	0.013		
	East Blue Beard	0.206	0.007	18	
	Half Moon	0.141	0.003	10	Present
Mansion ..	Coco Gut	0.166	0.005	18	Present
	Pond	0.190	0.016	43	Present
	Log Tree	0.141	0.017		
	Garden Pear Tree	0.228	0.011		
	Still House	0.179	0.011	29	Absent
	Robin	0.123	0.003	13	Present
Estridge ..	Lower Mahogany	0.155	0.005	28	Present
	Lower Challenger	0.124	0.012	25	
L. Bourryeau ..	Lower Hill	0.198	0.019	30	
Bellevue ..	(Penmanured)	0.221	0.019	140	Present
	Copper Hole	0.177	0.021	120	Present
	Good Luck	0.172	0.016	74	Present
	Pen Field	0.168	0.013		Present
Hope		0.162	0.008		
	Potter	0.110	0.013	22	Present
	Taylors	0.128	0.006	14	Present
	Upper Potter	0.137	0.006	15	Present
Lynches ..	Gerald Negro House	0.169	0.011	22	
	Paddock	0.200	0.009	9	Present

(Surface 9-inch layer of Soil)

Estate	Field	Exchangeable Lime (CaO) grms per 100 grms air dry soil (Method of	Exchangeable Potash (K_2O) grms per 100 grms air dry soil Rice Willi	Available Phosphate (Truog) p. p. m. P_2O_5 ams)	Easily soluble Manganese
Lavingtons ..	Cup Tree	0.106	0.004	29	Absent
	White Gate	0.126	0.004	35	Absent
	Cherry Tree	0.150	0.010	18	Absent
	Gerald	0.152	0.008	26	Absent
	No. 6	0.161	0.004	200	Absent
	Copper Hole	0.206	0.005	50	Trace
Parsons ..	Tamarind Tree	0.181	0.016		
	Lower Long Run	0.310	0.023	116	
Caines	Penny Flat	0.206	0.018		
	Caines Gate	0.367	0.021		Present
Willetts ..	Lower Long Run	0.162	0.018	132	Trace
	Pen Field	0.134	0.009	19	Absent
	Franco	0.157	0.009	32	Absent
	Long Run	0.150	0.010	22	
Mt. Pleasant ..	East Negro House	0.135	0.002		
	Peas Patch	0.106	0.005		
	Cess Pool	0.141	0.005	16	Absent
	Copper Hole	0.157	0.017	32	Absent
Belmont ..	Middle Mountain	0.112	0.005		Absent
	Chapel	0.172	0.008		Absent
	Lower Negro House	0.230	0.010		Absent
	Carpon Long Run	0.187	0.010		
Whites	Pasture	0.152		31	
	Mid. River	0.137	0.005	16	Present
Wingfield ..	Count William	0.216	0.011		
	Cotton Tree	0.217	0.009	12	Present
	Extension	0.179	0.002	11	
	Garden Tree	0.192	0.002	11	Present
Bourkes ..	Little Sir Gillies	0.396	0.020		
Ottleys	Air Pipe	0.177			
	Garden	0.212			Absent

Exchangeable Lime and Potash are low in nearly all of the soils of the upper lands which have been examined so far. Many of the soils are also deficient in available phosphate. The preliminary qualitative examination regarding easily soluble manganese are interesting and shows that unpenmanured lands may be deficient in other plant food elements besides nitrogen, lime, potash and phosphate and it is possible that such deficiencies may be limiting factors to maximum crop production on these lands.

It is hoped that it will be possible to carry this investigation further.

COTTON SELECTION.

Forty-two progeny rows were planted on the 2nd March, 1936, with seed from strains selected from the 1935 progeny rows. Germination was good but during the very dry weather in March and April many young plants succumbed to attacks of cutworms and grasshoppers and the supplies failed to germinate. In April many plants were attacked by Aphis. The first flower opened on the 26th April with the plants very stunted. The wet conditions in May forced the plants into rapid vegetative growth which caused some of them to develop curly leaf.

Determinations similar to those recorded in last year's report were made on bulk samples of 100 unselfed bolls.

The cotton gowers in St. Kitts have decided that from 1937 only the Montserrat type will be grown on a commercial scale. In order that the St. Kitts strain of cotton may not be lost one row of twenty plants of this strain will be grown each year at the Experiment Station and all the flowers produced will be self fertilised.

A sample of lint from one of the progeny rows of the St. Kitts cotton was sent to the Empire Cotton Growing Corporation for spinning tests and a summary of the reports received is given below.

THE BRITISH COTTON INDUSTRY RESEARCH ASSOCIATION COTTON TEST REPORT, No. 191.

Shirley Institute Ref. No.	Cotton	Length Characters				Immaturity		Mean Hair Weight per cm. (10 mgm.)
		Mean (mm.)	Effective Length (32nds. in)	% Dispersion	% Short Hairs	% Normal Hairs	% Dead Hairs	
X/E783 ..	St. Kitts	34.1	60	24	27	43	19	96
M.1129 ..	St. Vincent Commercial Control (lap)	31.8	56	29	26	43	18	117

REMARKS.

The sample sent for test is considerably longer than a sample of commercial St. Vincent Sea Island adopted as control, although as the control sample was available only in lap form (i.e after opening) its figure for effective length may be slightly lower than would have been obtained from the raw cotton.

The two samples are almost identical in immaturity, but the St. Kitts sample is appreciably finer than the St. Vincent, as indicated by its lower hair-weight per centimetre.

Spinning Test Report No. 191.

General Report.

SUMMARY AND DISCUSSION OF RESULTS OF TESTS.

A sample of the St. Kitts cotton was passed through the Shirley Analyser and the following results were obtained :—

%	Lint	98.5
%	Trash	1.1
%	Cage loss ..	0.4

The sample is thus very clean.

Spinning Test. Processing was satisfactory, except for a tendency to "lick" round the rollers on some of the frames, probably on account of the extreme fineness of the cotton. It should be noted that the figure for card waste % is unduly high on account of the small size of the sample. Comber loss was low compared with the St. Vincent cotton.

Spinning was good in 150's and 200's, and fairly good in 250's. Breakages were rather numerous in 300's, but there is no doubt that this count could be easily spinnable on a mule. (All the tests were spun on a ring frame, for which even 120's is regarded as an extremely fine count in the industry.)

The yarns are exceedingly strong, being much stronger than those spun from the commercial St. Vincent.

The sample tested is a very good cotton and, provided that neppiness could be avoided, would prove suitable for spinning into the finest possible yarns.

Report on Yarn Appearance.

The yarns spun from the sample of St. Kitts cotton (X/E783) and from the control sample of St. Vincent cotton (M.1129) have been submitted to the Joint Spinning Tests Sub-Committee of the Empire Cotton Growing Corporation and British Cotton Industry Research Association. The Sub-Committee considered that all the yarns were good in appearance, and that the control yarn was slightly better in appearance than the St. Kitts yarn in 150's, but in 200's the St. Kitts yarn was better than the control. (The control was not spun to 250's and 300's.)

CHEMICAL ACTIVITIES.

The examination of soil samples in connection with a lime and potash survey of the upper lands of estates was the chief chemical work undertaken by the Department during the year. A summary of the results obtained is included in this report.

Other samples examined included milk, liquors, cane juices, lime, manures, kerosene oil (flash point), etc.

AGRICULTURAL EDUCATION.

Lectures in Soil Science and Botany continued to be given to the senior class from the Grammar School. The lectures were given twice a week at the Experiment Station and the work covered the syllabus of the Cambridge School Certificate examination in general science.

PUBLICATIONS.

A pamphlet entitled "The Cotton Industry of Nevis" giving information relating to the cultivation, marketing and legislation affecting the industry was issued by the Department during the year and distributed among the peasantry in Nevis.

"Recent Investigations on Sugar-cane and Sugar-cane Soils in St. Kitts" (Part II) was published in "Tropical Agriculture" Vol. 13., No. 10, October, 1936, in collaboration with Mr. P. E. Turner.

GENERAL.

The Library was maintained in good order and a few new books were added.

The Agricultural Superintendent continued to perform the duties of Honorary Secretary and Treasurer of the Agricultural and Commercial Society and the Cotton Growers Association.

Many Minute Papers were dealt with during the year and information and advice on agricultural matters given to His Honour the Administrator.

The Department desires to thank estate owners and managers for their willing co-operation with its officers, especially in the laying down and reaping of sugar-cane experiments.

STAFF CHANGES.

Mr. G. B. Gregory, Agricultural Assistant, was transferred to St. Lucia early in the year and his place was taken by Mr. J. M. Cave, Assistant at the Central Cane Breeding Station, Barbados.

Mr. F. S. Delisle was appointed Cotton Inspector, St. Kitts, in conjunction with his duties as Assistant Clerk.

Mr. C. Wilson was appointed Cotton Inspector and Land Officer, Nevis, from the 24th February.

Leave. Mr. J. R. M. Cave, Agricultural Assistant, was on sick leave from the 29th December to the 11th January.

Mr. F. S. Delisle was on sick leave from the 11th to the 24th March.

SECTION III

FINANCIAL STATEMENT.

AGRICULTURE.

EXPENDITURE.

	£	s.	d.
Personal Emoluments	1,363	13	3
Travelling and Subsistence Allowances	147	8	1
Experiment Stations	143	10	1½
Sugar Cane, Cotton and other Expts.	215	10	7
Apparatus, Chemicals and Books	31	12	1
Contingencies	16	15	9
Destruction of wild cotton, etc.	44	9	9
Demonstration Plots (Nevis and Anguilla)	80	4	8
Purchase of vegetable seeds	30	2	5½
Sugar-cane Breeding Station, Barbados	53	5	4
Total	£2,126	17	1

REVENUE.

	£	s.	d.
Sale of Plants and Seeds	253	10	4

FORESTRY.

EXPENDITURE.

	£	s.	d.
Personal Emoluments	16	12	0
Inspection Expenses	3	13	0
Total	20	5	0

SECTION IV.

SUMMARY OF LEGISLATION AFFECTING AGRICULTURAL INDUSTRIES AS AT 31ST DECEMBER, 1936.

1. PLANT QUARANTINE.

I. EXTERNAL—IMPORT PROHIBITIONS.

The introduction of all plant material is regulated under the Plant Fumigation Ordinance No. 3 of 1907 and the Plant Protection Ordinance No. 2 of 1923. Many Statutory Rules and Orders, Proclamations and Regulations have been passed under these Ordinances. All seeds, plants, planting material and containers introduced into the Presidency are forwarded by the Customs and Post Office authorities to the Department for inspection.

The following schedule gives the position of legislation regulating the importation of material likely to be a means of introducing diseases or pests.

A. Prohibited Articles, Including Plants, Soil and Packages and Articles Connected therewith.

Articles prohibited.	Country of Origin	Reasons for Prohibition	Index of Legislation
Banana. Fruit, Suckers and every part thereof and earth, soil or any other thing packed therewith.	All countries except St. Vincent and the other islands of the Leeward Islands Colony.	Panama disease, root disease and insect pests.	Statutory Rules and Orders No 16 of 1930
Coconuts, coconut palms and every part of such nuts and palms and earth, soil or any other thing packed therewith	Grenada, St. Vincent Trinidad and Tobago Cuba, Jamaica and South America.	Red Ring disease and other diseases.	do
Citrus plants, fruits (except of the lime) and any parts thereof and soil or any other thing packed therewith.	United States of America, Cuba Jamaica Haiti, the Dominican Republic of Porto Rico.	Citrus Canker citrus blackfly and other pests and diseases.	do

B. Prohibited Articles Except Under Licence.

Articles Prohibited.	Country of Origin.	Reasons for Prohibition.	Index of Legislation
Cotton seed, seed cotton ...	From all countries	Precaution against introduction of pests and diseases not at present in the Presidency	Statutory Rules and Orders No. 16 of 1930.
Sugar-cane and all parts thereof and earth, soil or any other thing packed therewith.	From all countries	do.	do.

C. Permitted Articles, Provided these have passed inspection by the Agricultural Department or are otherwise authorised to be Imported.

Articles permitted.	Country of Origin.	Index of Legislation.
Garden seeds.	From any place.	Plant Fumigation Ordinance No. 3 of 1907.
Plants, root-stocks, nuts, tubers, bulbs, cuttings etc., free from soil and not included under "A" and "B".	do.	Plant Protection Ordinance No. 2 of 1923.

II. INTERNAL—EXPORT PROHIBITIONS.

Prohibited exports.	Destination.	Index of Legislation.
Limes, grapefruit, oranges, mangoes, avocado pears lemons, pineapples, tomatoes, Irish potatoes, and also any other fresh fruit, nut or vegetable, which the Governor-in-Council may declare by Proclamation, unless under the certificate of a Fruit Inspector.	All countries, except the West Indies and Bermuda.	Ordinance No. 11 of 1930 Statutory Rules and Orders No. 1 of 1931.

II. INTERNAL—EXPORT PROHIBITIONS.

Prohibited exports	Destination.	Index of Legislation
Cotton seed, unless under licence by the Governor-in-Council	All countries.	Ordinance No. 4 of 1936.
Baled cotton lint, except with the approval of the Cotton Inspector ..	All countries.	Ordinance No. 5 of 1936.
Cotton, regulates the amount to be exported annually	United Kingdom and Europe and such other areas as the Governor may from time to time prescribe.	Ordinance No. 13 of 1935.

III. INTERNAL—CONTROL OF DISEASES AND PESTS WITHIN THE PRESIDENCY.

Diseases and Pests	Locality	Index of Legislation.
Cuscuta spp. "Dodder"	Generally	Plant Protection Ordinance No. 2 of 1923.
Gumming Disease of Sugar-cane.	do	Statutory Rules and Orders No. 20 of 1927.
Mosaic Disease of Sugar-cane	do	Proclamation of May 9th 1923.
Pink Bollworm, Cotton Strainer and Leafblister Mite.	do	Ordinance Nos. 7 of 1918, 8 of 1918, 12 of 1920, 5 of 1921, 16 of 1921 and 6 of 1923. Statutory Rules and Orders Nos. 22 of 1927, 29 of 1927, 9 of 1928, 3 of 1935 and 5 of 1936.

2. MISCELLANEOUS LEGISLATION AFFECTING AGRICULTURAL INDUSTRIES.

Measure	Object	Index of Legislation.
Cotton	To regulate local traffic in cotton.	Ordinances Nos. 10 of 1913, 9 of 1914 and 5 of 1929.
Cotton	To impose a levy on cotton exported from the Presidency.	Ordinance No. 22 of 1933. Statutory Rules and Orders No. 2 of 1936.
Cotton	To provide for the control of cotton seed intended for planting.	Ordinance No. 4 of 1936.
Government Lands ..	Land Settlement, allotment and sale.	Ordinance No. 4 of 1900 Statutory and Orders No. 2 of 1932.
Wild Birds Protection ..	Close Season etc.	Ordinance No. 6 of 1913. Proclamation of May 8th, 1923.
Forests	Protection of	Ordinances Nos. 10 of 1903 and 5 of 1928. Statutory Rules and Orders No. 28 of 1927. Regulations of Oct. 20th, 1923.

3. ANIMAL QUARANTINE.

I. EXTERNAL—IMPORT PROHIBITIONS.

Prohibited importations.	Country of Origin	Reasons	Index of Legislation.
Animals, unless provided with local inspection certificate	All countries	Prevention of animal diseases	Ordinance No. 2 of 1917. Order-in-Council of Dec. 16th 1924.
Cats and dogs. No other animal except accompanied by certificate of Govt. Veterinary Officer ..	Trinidad	"Dumb Rabies"	Statutory Rules and Orders No. 2 of 1923

II. INTERNAL—CONTROL OF ANIMAL DISEASES WITHIN THE PRESIDENCY.

Notifiable Diseases.	Measures	Index of Legislation
Rinderpest, Anthrax, Contagious Pleuro-Pneumonia, Foot-and-Mouth disease, Sheep Pox, Sheep Scab Glanders, Tuberculosis, Cow Pox, Rabies, Texas Cattle Fever, Foot Rot, Surra, etc.	Destruction, disinfection isolation, regulation of movement.	Ordinance No. 2 of 1917.

APPENDIX I.

LAND SETTLEMENT, NEVIS.

The land settlements continue to make satisfactory progress. At Low Ground, of the 69 plots, 66 have been taken up and they are nearly all fairly well worked. The cane demonstration plot turned out fairly well, and demonstrated that with proper cultivation profitable crops of canes can be produced even on the heavy plots. The total cost of bringing the plot under cultivation and growing the crop of canes was £7. 8. 3. and the total number of cane plants distributed was 25,350. Had the crop been grown by a peasant the actual expenses would not have been nearly so high, as he himself would have done a great part of the work and provided the pen manure.

At Hamilton, of the 165 plots, 138 have been taken up and are being worked in a satisfactory manner. The remaining plots are nearly all in the high lands and are at present reserved.

The cane nursery plots for 1937 plants were all planted in November and the germination is fairly good.

The following is a list of the plants, seeds, etc. distributed during the year:

	Hamilton	Low Ground
Cane plants	224,176	84,550
Onion seedlings	74,500	31,800
Tomato seedlings	177,150	27,450
Selected cotton seed, lb.	2,376	1,270
Yams, lb.	20	80
Seed Corn, lb.	6	4
Peas, lb.	6	4
Grafted mangoes	4	—
Bay trees	12	—
Cassava cuttings	400	—

APPENDIX II.

GOVERNMENT MARKETING DEPOT, NEVIS.

Report of the Officer-in-Charge (Agricultural Instructor).

The Government packing house was opened for operations on October 24th, and the first shipment was made on November 3rd and the last on December 1st.

Only tomatoes were handled this season and the total quantity shipped to Canada was 713 crates. An advance to the growers of one cent per lb. was made on exportable tomatoes.

During the season 111 growers supplied tomatoes to the packing house, and the total quantity received was 16,732 lb of which 14,220 lb were exportable, giving 15 per cent. culls, which is 3.6 per cent. higher than that of last season.

All the shipments were made to St. John and the net price to the grower was on an average of 2.1 cents per lb.

The tomato crop on the whole was disappointing. A larger acreage than usual was planted, but excessive rains badly affected the yields.

The following tables show details of shipments and the results of the season's operations.

Date of Shipment.	Weight of tomatoes exported	Net Price per lb.
November 3rd	8,842 lb.	3.0 cents
November 17th	3,429 lb.	2.4 cents
December 1st	1,949 lb.	1.0 cents

	Receipts	Expenditure
Net proceeds account sales	£170 7 5	
Packing house expenses		£10 10 8
Packing material, crates, etc.		29 16 4
Packing house levy		5 18 10
Cold storage		18 8
Porterage and lighterage		3 12 7
Truckage		12 0
Telegrams		14 3
Freight		40 19 8
Advances on tomatoes		29 12 6
Sundry supplies		1 4 9
Profit for the season		46 7 2
	£170 7 5	£170 7 5

It has been decided by the Government to pay a bonus of 1d. per lb. to growers on the first shipment.

APPENDIX III

REPORT ON THE PURCHASING OF PEASANTS' COTTON IN NEVIS.

By the Agricultural Instructor, Nevis.

The marketing of the peasants' cotton crop was started by the Government on April 1st, 1931.

The system adopted was as follows:—An advance of about three quarters of the ruling price of cotton was paid on all clean sea island cotton delivered to the Government. The cotton is examined to make sure that it is clean and without mixture of any inferior type before it is taken over. The cotton is ginned and the lint marketed by the Government. The seed is also sold on account of the peasants. On the receipt of account sales of the lint and seed, the expenses for handling, ginning, marketing, etc., are deducted and the balance distributed to the peasants in proportion to the seed cotton delivered.

The 1931 crop was ginned by contract by Messrs. Wildy & Co., at the Fine Spinners Ginnery. The Government, the same year, purchased the ginnery from the Fine Spinners, and after, all the cotton turned into the Government was ginned at the Government Ginnery under the supervision of the Agricultural Instructor, who is also in charge of the cotton purchasing.

It is felt, especially by the peasants, that in this matter the Government has taken a step in the right direction, as the system makes it possible for the peasant to obtain the maximum price for his cotton.

The following table shows the quantity of seed cotton purchased during the past six years and the prices paid for seed cotton :—

Year	No. of vouchers for advances issued.	Total amount of seed cotton purchased	Advance per lb seed cotton	Total cost for season.	Bonus per lb seed cotton	Total price paid for seed cotton per lb.
				£ s. d		
1931	756	160,598	5 cts.	2,358 12 7	1.8 cts.	6.8 cts.
1932	230	32,307	3 cts.	289 15 6	1.4 cts.	4.4 cts.
1933	153	26,612	3 cts.	260 11 1	3.3 cts.	6.3 cts.
1934	832	143,436	4 cts.	1,650 14 4	2.6 cts.	6.6 cts.
1935	529	94,952	4 cts.	1,111 11 10	3.7 cts.	7.7 cts
1936	1,812	388,384	6 cts.	6,011 2 2	3.2 cts.	9.2 cts.

During 1936 the purchasing of cotton was undertaken on similar lines as in the past. An advance at the rate of 6 cents was paid on all clean sea island cotton delivered at the cotton house. The total quantity of seed cotton purchased was 388,384 lb. and the amount of lint obtained from it was 107,751 lb. with an average of 27.7% of lint to seed cotton for the season. The lint

was shipped to the British Cotton Growing Association in 228 bales. The cotton seed was sold to the Spooners Cotton Factory, St. Kitts, except a supply of the best which was kept for planting. The cotton was sold in England at 1s. 7d. per lb. and a bonus of 3.2 cents per lb. was paid to the peasants on the seed cotton delivered to the Government, after deducting expenses. The total amount therefore received by peasants for the 1935—36 cotton crop was 9.2 cents perl lb. seed cotton.

The total cost of the undertaking was £6,011. 2. 2. and the receipts from the sale of cotton and cotton seed was £8,713. 13. 3. leaving a profit of £2,702. 11. 1. to be divided among the peasants as bonus.

The details of receipts and expenditure are given in the following statement:—

Statement of Receipts and Expenditure in Connection with the Marketing of The Nevis Peasants' Cotton Crop (Clean Cotton) During the 1935—36 Season.

	Debits			Credits		
Balance to credit of a/c on 1 Jan., 1936				£21	15	5
Expenses in cotton house	£27	18	10½			
Whipping seed cotton	7	4	5			
Insurance	24	0	0			
Bags	56	3	6			
Sundry Supplies	9	1	2			
Porterage	48	14	3½			
Truckage and cartage	7	19	11			
Boatage	35	9	2			
Hire of hand cart	5	4	0			
Cess and pier dues	164	6	4½			
Hand picking cotton seed	166	1	1½			
Expenses of ginning and baling ..	208	5	4			
Advances to growers @ 3d. per lb. ..	4,854	16	0			
Ginnery Fund	240	13	11			
Interest	125	0	0			
Honorarium to Agricultural Instructor	25	0	0			
Bonus to growers @ 1.6d. per lb. ..	2,588	0	6			
Interest charges by B.C.G.A. ..	4	6	9			
Telegram		17	4			
Sale of cotton seed to Spooners Ginnery				364	19	1
„ „ „ „ to growers ..				244	7	8
Petty receipts				4	15	2
Refund of cess				23	1	6
Nett proceeds sale of cotton by B.C.G.A.				8,029	18	6
Interest B.C.G.A.				24	15	11
Balance carried forward	114	10	7			
	£8,713	13	3	£8,713	13	3

Latitude 17° 20′ N.

Longitude 62° 45′ W.

METEOROLOGICAL REPORT FOR 1936.

AGRICULTURAL DEPARTMENT, ST. KITTS.

Heights above M.S.L. — Barometer 157 feet; Rain Gauge 152 „

Months.	Barometric Pressure reduced to Sea Level, 32° Fahrenheit and corrected for gravity.					Temperatures °F								Vapour Pressure ins. of Mercury.			Relative Humidity per cent.			Inches Rainfall	No. of days on which rain fell.
	9 a.m.	3 p.m.	Mean	Highest	Lowest	Maximum Means	Minimum Means	Maximum Extreme	Minimum Extreme.	Mean for Month	Range for Month	Dew Point 9 a.m.	Dew Point 3 p.m.	9 a.m.	3 p.m.	Mean.	9 a.m.	3 p.m.	Mean.		
	Inches																				
January ...	30·044	29·971	30·007	30·114	29·921	81·0	72·1	83	70	76·6	13	66·2	67·8	·656	·674	·665	68·0	68·0	68·0	3·08	20
February ...	30·045	29·987	30·016	30·116	29·933	81·0	70·0	83	66	75·6	17	64·4	64·2	·620	·608	·614	66·5	61·0	63·8	3·88	13
March ...	30·015	29·944	29·979	30·069	29·878	81·2	71·1	83	67	76·2	16	66·0	65·8	·635	·641	·638	66·0	62·0	64·0	0·98	7
April ...	30·033	29·971	30·002	30·117	29·888	83·9	74·1	86	69	79·0	17	68·1	68·6	·703	·712	·708	65·5	64·5	65·0	0·69	9
May ...	29·939	29·877	29·980	30·027	29·736	84·5	74·9	87	70	79·7	17	73·0	71·6	·806	·773	·789	73·5	70·0	71·8	8·02	17
June ...	30·020	29·947	29·983	30·087	29·860	86·3	76·8	88	73	81·6	15	73·1	73·2	·831	·836	·834	70·5	69·5	70·0	2·35	16
July ...	30·017	29·983	30·000	30·125	29·859	86·3	76·6	88	72	81·5	16	73·1	73·8	·821	·839	·830	72·5	71·8	72·8	4·05	18
August ...	29·989	29·921	29·955	30·030	29·855	85·0	75·9	87	72	80·5	15	74·8	74·0	·851	·851	·851	75·8	75·8	75·8	7·29	21
September ...	29·954	29·900	29·927	30·029	29·804	85·1	75·3	88	71	80·4	17	74.0	74·0	·848	·857	·853	77·0	76·0	76·5	8·39	21
October ...	29·963	29·903	29·933	30·018	29·839	84·3	74·7	86	72	79·5	14	74·4	74·2	·848	·854	·851	80·0	77·0	78·5	8·36	24
November ...	29·978	29·895	29·937	30·063	29·805	84·1	74·1	85	70	79·1	15	73·4	73·0	·818	·818	818	79·0	74·0	76·5	5·03	19
December ...	29·980	29·899	29·939	30·079	29·751	81·7	72·4	83	68	77·0	15	68·4	68·4	·709	·703	·706	71·0	72·5	71·8	6·55	19
Means ...	30·020	29·933	29·971			84·0	74·3	85·6	70·0	78·9	15·6	69·2	70·9	·763	·764	·764	72·1	70·4	71·2	58·67	204

RAINFALL RETURN FOR ST. KITTS FOR YEAR 1936.

Station.	January.	February	March	April.	May	June.	July.	August.	September.	October.	November.	December.	Total.
Willets	2·05	1·96	1·00	1·73	7·70	12·25	6·55	10·40	6·80	16·50	8·30	5·45	80·69
Wingfield	5·12	4·18	0·56	1·36	4·81	4·13	6·26	12·21	12·90	12·49	7·78	6·48	78·28
Belmont	2·50	2·72	0·56	1·33	6·11	12·58	4·43	9·36	8·43	16·69	5·81	6·13	76·65
Belle Vue	2·03	2·91	0·93	1·46	9·83	3·55	5·44	8·03	11·05	18·04	7·01	5·56	75·84
Lamberts	5·19	4·02	1·86	2·43	4·42	4·17	6·47	10·31	7·14	13·15	10·53	6·09	75 78
Caines	2·42	2·21	0·65	2·15	10·00	3·83	7·61	7·96	9·26	13·91	6·73	6·91	73·64
Parsons	2·29	1·62	0·89	2·48	6·51	6·15	6·05	9·48	10·40	14·67	6·50	5·78	72·82
Fountain	4·55	2·16	3·00	0·67	8·13	2·29	4·53	10·15	7·60	15·11	6·48	7·81	72·48
Lodge	3·02	2·77	0·89	2·71	8·81	3·03	6·06	7·11	11·26	13·22	6·26	5·70	70·84
Bourkes	3.40	3·05	0·83	1·84	5·39	2·71	5·78	10·55	10·67	11·13	7·09	7·35	69·79
Molineux	2·82	3·17	1·47	1·88	8·60	2·46	6·52	7·94	10·43	13·13	6·06	5·15	69·63
Stapleton	4·02	3·61	1·46	0·88	8·93	2·52	5·14	7·53	11·48	10·33	5·60	8·02	69·52
Brothersons ..	1·87	1·31	0·78	0·52	5·88	7·83	5·18	5·36	11·30	15·20	7·06	6·07	68·36
Shadwell	3·40	3·22	2·73	0·70	7·77	2·58	4·10	8·22	10·51	10·62	6·33	6·52	66·70
Estridge	2·49	2·27	1·62	0·92	8·20	4·62	3·98	9·08	7·33	13·88	5·62	5·75	65·76
Cranstouns ...	2·54	2·77	0·63	1·33	4·71	3.31	4·25	8·94	9·19	13·14	6·90	5·34	63·05
La Vallee	2·18	2·70	1·09	1·65	4·69	2·78	4·56	10·92	8·21	10·84	7·56	5·25	62·43
Brighton	3·01	2·26	0·65	2·40	6·78	2·29	5·63	7·66	8·25	12·40	4·97	5·95	62·25

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